ANNUAL REPORT 1987-88

Central Council for Research in Ayurveda & Siddha

MINISTRY OF HEALTH & FAMILY WELFARE
(GOVERNMENT OF INDIA)

CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA

ANNUAL REPORT
1987-88

MINISTRY OF HEALTH AND FAMILY WELFARE
(Government of India)
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PREFACE

The Central Council for Research in Ayurveda and Siddha, an autonomous body under Ministry of Health and Family Welfare, Government of India is an apex body in India for the formulation, coordination, development and promotion of research on scientific lines in Ayurveda and Siddha. The Council carries out its objects and functions through the net work of Research Institutes and Centres functioning under its direct control and through a number of Units/Enquiries located in Universities, Ayurveda/Siddha and Modern Medical Colleges etc., in different parts of the country. During the reporting period the research studies covered the broader areas of Clinical Research, Health Care Research including Tribal Health Care Research, Drug Research, Literary Research and Family Welfare Research. With a view to implement new programmes allotted vide Programme Projection 1986-90, the Council has taken up a number of steps including development of research protocols/working papers, review and consolidation of the work carried out in different fields of research. A brief review of the research activities carried out during the period under review is reported hereunder :—

Clinical Research

Clinical Research conditions studied during the reporting period include Amavata (Rheumatoid arthritis), Pakshavadha (Hemiplegia), Gridhrasi (Sciatica), Pangu (Paraplegia), Saisaveeyavata (Poliomyelitis), Amlapitta (Hyperacidity), Parinamasula (Duodenal ulcer), Annadravasula (Gastric ulcer), Grahani roga (Malabsorption syndrome), Krimi roga (Parasitic infestation, Tamaka swasa (Bronchial asthma), Sweta pradar (Leucorrhoea), Kitibha (Psoriasis), Madhumeha (Diabetes mellitus), Mutra Krichha (Dysuria), Raktachapa (Hypertension), Hridroga (Ischaemic heart diseases), Sleepada (Filariasis), Visham jwara (Malaria) and Arbuda vishesh (Cancer). Clinical studies on Mutrashmari (Urolithiasis) and Vrikka shotha (Chronic nephritis) have also been taken up during the reporting period.

Clinical conditions under Siddha System of Medicine studied during the reporting period include Valligunmam (Peptic ulcer), Putrunoi (Cancer), Manjal kamalai (Infective hepatitis), Sandhi vatha soolai (Rheumatoid arthritis), Kalanjaga padai (Psoriasis), Vellainoi (Leucorrhoea). Peruvaeeru (Ascitis), Gunmam (Intestinal disorders), Velluppunoi (Anaemia), Venkuttam (Leucoderma), Neerazhivu (Diabetes mellitus), Oothal noi (obesity) and Karappan (Skin diseases).

Efforts made to consolidate the work carried out under clinical studies has resulted into the publication of seven clinical monographs on different clinical conditions like Visham jwara (Malaria), Kamala and Yakrit disorders (Jaundice and liver disorders), Mutrashmari and Mutrakriccha (Urinary tract calculi and urinary disorders), Jatharagni and Dhatwagni (Concept of metabolism), Paurush granthi vriddhi (Enlarged prostate), Timir roga (initial stages of cataract) and Kalanjaga padai (Psoriasis).

During the execution of this programme, medical aid to 3,68,927 patients through Out Patient Departments and 2,986 patients at In-door Patient Departments functioning at different Institutes/Centres of the Council have been provided.

Health Care Research Programme

Health Care Research Programme carried out by the Council consists of Service-oriented Survey and Surveillance Screening Programme, Community Health Care Research Programme and Tribal Health Care Research Programme. These programmes are modulated to have rural bias so that benefits of the research programme carried out can reach the grass root level. Under these programmes, teams of research personnel visit each and every house in the villages/tribal pockets selected/adopted and provide incidental medical aid besides collecting data pertaining to the nature and frequency of prevalent diseases, food habits with regard to different seasons, socio economic factors, natural resources, the standard and types of treatment available to the rural/tribal folk. During the period under report, a population of 1,74,574 individuals pertaining to 121 villages including 35 tribal pockets have been covered under this programme and incidental medical aid provided to 67,103 patients.

Drug Research

The Council has been carrying out Medico-botanical Survey, Cultivation of Medicinal Plants, inter-disciplinary research programmes like Pharmacognostical, Chemical, Pharmacological and Toxicological Studies besides Drug Standardisation studies. Under Medico-botanical Survey Programme, 38 forest areas have been covered and 5065 herbarium specimens were added to the Herbarium in addition to the 263 drug specimens added to the Museum. Drug samples amounting to more than 1105 kg. including dry and fresh raw drugs were collected and supplied during the course of survey besides collecting 349 folk medical claims. About 300 medicinal species have been taken for experimental and large scale cultivation. Pharmacognostical studies of 17 drugs, Chemical studies of 25 drugs, Pharmacological and Toxicological studies of 45 drugs used in Ayurveda and Siddha System of Medicine have been carried out during the reporting period.

Under Drug Standardisation research studies 108 single drugs, 31 finished products and five methods of manufacture have been studied besides laying analytical standards for 12 formulations used in Ayurveda and Siddha. A monograph entitled "Pharmacopoeial Standards for Ayurvedic Formulations" has been published.

Literary Research

Literary Research Programme broadly covering medico-historical studies, collection and compilation of references relating to drugs and diseases from classical treatises, lexicographic works, contemporary literature and publications of Ayurveda, Siddha and Modern Sciences continued further. In the field of revival and publication of ancient literature Uttarsthan of Astanga Sangraha has been published and publication of Sahasra Yoga in Sanskrit and Hindi is in the process of printing. The Council is bringing out quarterly "Journal of Research in Ayurveda and Siddha", "Bulletin of Medico-Ethno-Botanical Research", "Bulletin of Indian Institute of History of Medicine" besides the 'News Letter'. During the reporting period most of the backlog of these periodicals have been cleared.

Family Welfare Research Programme

Clinical screening and Pharmacological studies of the oral contraceptive agents are being carried out under this programme. 474 new cases were studied besides old cases carried forward from the previous year for clinical evaluation of oral contraceptive agents like AYUSH-AC IV, K-capsule, Pippalyadi yoga and Vandhyavari (*Vicoa indica*). Pharmacological study of Ghrit kumari (*Aloe barbadensis*), Gunja (*Abrus precatorris*), Neem oil and Japakusum (*Hibiscu rosa sinenses*) have been carried out.

The Council's officials were the recipients of gold and silver medals by the august bodies for the outstanding research work/ studies carried out by them in various fields under the aegis of the Council.

V. N. Pandey

(V.N. PANDEY)

Dated, September 19, 1988

Director and Member Secretary, Governing Body, CCRAS

ADMINISTRATIVE REPORT

The Central Council for Research in Ayurveda and Siddha is a Society registered on 30th March, 1978 under the Societies Registration Act XXI of 1860. During the period under report ending 31st March, 1988, the membership of the Society and Governing Body of the Council were as under :—

1. President	:	Shri P.V. Narasimha Rao, Union Minister of Health and Family Welfare. (upto 13th February, 1988).
	:	Shri Motilal Vora, Union Minister of Health and Family Welfare (From 14th February, 1988).
2. Vice-President	:	Miss Saroj Khaparde, Union Minister of State for Health and Family Welfare
3-5. Official Members	:	1. Shri S.S. Dhanoa, Secretary, Ministry of Health and Family Welfare
		2. Shri S.K. Alok, Joint Secretary, Incharge of ISM, Ministry of Health and Family Welfare
		3. Shri N.S. Bakshi, Joint Secretary (F.A.), Ministry of Health and Family Welfare
6-16. Non-Official Members	:	1. Dr. Shivkaran Sharma Chhangani
		2. Vd. Raghuvir Prasad Trivedi
		3. Prof. A.N. Namjoshi
		4. Dr. A. Ananda Kumar
		5. Vd. Davinder Kumar Triguna
		6. Dr. (Mrs.) L. Sharadamma

			7. Vd. Satya Pal Gupta
			8. Dr. N. Hanumantha Rao
			9. Prof. B.N. Dhavan
			10. Dr. Rajendra Gupta
			11. Dr. C.S.Uthamaroyan
17.	Director, NIA, Jaipur	:	Dr. Swamy Ram Prakash
18.	Director, NIS/CRI (S)	:	Vacant
19.	Member-Secretary	:	Dr. V.N. Pandey, Director, CCRAS

During the period under report, the Governing Body met once on 26th February, 1988 and decided among others the following important matters :—

1. Approved the renaming of the Central Research Institute (Ayurveda), Bombay as Rajaram Poddar Central Research Institute (Ayurveda).

2. Approved the proposal for undertaking seed research programme for a period of two years at Mangliawas, Ajmer under the control of Regional Research Institute (Ay.), Jaipur at an annual expenditure of Rs. 84,000/-.

3. Ratified the appointment of Dr. V.N. Pandey as Director CCRAS on regular basis with effect from 31-5-1982 as well as regularisation of absence from 14-12-1984 to 2-6-1986 by grant of leave.

4. Approved that Dr. V.N. Pandey may be deemed to have satisfactorily completed the period of probation as Director of the Council.

5. Decided in regard to scheme for merit promotion that the Council may introduce a five year assessment system as prevalent in scientific organisations for providing incentives to the research workers.

6. Directed that a comprehensive Glossary of Medicinal Plants may be finalised in consultation with I.C.M.R., C.S.I.R., I.C.A.R. etc.

7. Suggested that a national debate should be arranged for proper understanding of the medicinal plant wealth in the country, their uses, preservation, cultivation, propagation etc.

8. Approved the composition of Selection Committee/Departmental Promotion Committee for various posts under the Council.

9. Approved the recruitment rules for the post of Deputy Director (Admn.) and certain new posts.

10. Approved the constitution of Review and Appellate Committees for different categories of posts under Rule 56 (J).

11. Approved the upgradation of one post of Statistical Assistant in the scale of Rs. 1400-2300 to that of Statistical Investigator in the scale of Rs. 1640-2900 along with the recruitment rules.

12. Approved the creation of one post of Personal Assistant to Director in the scale of Rs. 1640-2900 in the Headquarters Office of the Council along with the recruitment rules.

13. Approved the establishment of two Tribal Health Care Research Projects at Imphal (Manipur) and Bastar (Madhya Pradesh) along with the staff and expenditure pattern.

14. Approved the establishment of seven zones by reorganising the existing Survey Units of the Council for achieving effective monitoring and proper coordination and the upgradation of the existing six posts of Survey Officers/Research Officers in the Survey Units to that of Assistant Director in the respective discipline in the scale of Rs. 3000-4500.

15. Approved the creation of 24 new posts in the Headquarters office of the Council.

16. Approved the procurement of a Micro-computer (IBM-PC/AT and PC—XT) for the Headquarters Office of the Council at an estimated cost of Rs. 1.90 lakhs.

17. Approved the creation of one post of Programmer in the scale of Rs. 2200-4000 and one post of Data Entry-cum-Computer Operator in the scale of Rs. 1400-2300 in the Headquarters Office of the Council along with their recruitment rules.

18. Approved the proposal for holding of an International Seminar

on Ayurveda and Siddha at an estimated cost of Rs. 8.5 lakhs in collaboration with W.H.O. during 1989.

19. Approved the setting up of a 'Compilation Unit for Documentation of Post-Graduate Doctoral Dessertations' in the DPD of Headquarters Office along with creation of the posts of one Hony. Editor at a consolidated remuneration of Rs. 2,000/- p.m., one Professional Junior Assistant in the scale of Rs. 1640-2900 and one Typist in the scale of Rs. 950-1500 at a total expenditure of Rs. 85,000/- per annum.

20. Approved the construction of stockades for the Musk Deer at the Musk Deer Farm, Maharuri at an estimated cost of Rs. 6.26 lakhs.

21. Approved the proposal for reorganisation of various research projects under Siddha System of Medicine.

22. Approved the scheme for undertaking pre-clinical studies on certain drugs claimed by Dr. R. Kannan and Dr. A. Ananda Kumar for anti-fertility potential in Central Research Institute (Siddha), Madras with a contingent provision of Rs. 10,000/-.

23. Adopted the audited statement of accounts of the CCRAS for the year 1985-86.

24. Approved the revised estimates for 1986-87 and budget estimates for 1987-88 of the Council.

25. Approved the establishment of a Literary Research Unit at Documentation and Publication Division along with the staff and expenditure pattern.

26. Approved the construction of garden shed and laboratory at JNAMPG&H, Pune at an expenditure of Rs. ,64,269/-.

27. Approved the construction of storm water drainage at IIP, Cheruthuruthy at an expenditure of Rs. 1,17,051/-.

28. Approved the staff pattern for the Central Research Institute (Ayurveda), Bombay.

29. Approved the repair works in the building of Central Research Institute (Ay.), Bombay including electrical fittings at an expenditure of Rs. 2,39,261/-.

30. Approved the shifting of Pharmacognosy Research Unit from National Botanical Research Institute, Lucknow to Regional Research Institute (Ay.), Lucknow with the revised staff pattern.

31. Approved the introduction of LIC Salary Savings Scheme and PLI in respect of staff of the Council.

32. Approved the upgradation of the post of Storekeeper in the scale of Rs. 950-1500 to Rs. 1200-2040 in the CRI (Ay.), Delhi, IIP, Cheruthuruthy, IIK, Patiala, CRI (Ay.), Bombay and CRI (Siddha), Madras.

33. Approved the creation of one post of Senior Photographer in the scale of Rs. 2000-3500 and one post of Artist in the scale of Rs. 1400-2300 in the DPD for the Microfilming Unit.

34. Approved the creation of various posts for the budget section, meeting section, typing pool, Hindi Cell and Administration Section in the Headquarters Office of the Council.

35. Approved the establishment of a scheme on Rasashastra in Delhi at an expenditure of Rs. 2.38 lakhs per annum.

36. Approved the conversion of the post of Kitchen Servant to that of Chowkidar in the scale of Rs. 750-940 at JNAMPG&H, Pune.

37. Approved the condemnation of old Survey Jeep No. UPD 308 and its disposal and purchase of new Petrol Jeep as a replacement at an estimated cost of Rs. 1.35 lakhs.

38. Approved the construction of garden house and barbed wire fencing at the medicinal plants garden at Chamma under Amalgamated Units, Tarikhet at an expenditure of Rs. 2,81,200/-.

39. Approved the construction of barbed wire-fencing with angle iron posts around the 15 acres of land at RRC (Ay.), Itanagar at a cost of Rs. 1,84,200/-.

40. Approved the payment of actual conveyance charges to the Project Officer, Amchi Research Unit, Leh (Ladakh) for attending to the duties of the Unit and also to review the position after six months for fixing suitable lumpsum honorarium on monthly basis.

41. Approved the repairs, additions and alterations to the outhouse and construction of water tank for Pharmacy in the IIP, Cheruthuruthy at an expenditure of Rs. 62,939/-.

42. Approved the construction of garage for jeep, renovation of toilet blocks and electrical installation works for X-Ray Plant and Pulveriser for CRI (Annd), Bombay at a total expenditure of Rs. 1,62,195/-.

43. Approved the enhancement of the honorarium of Hony. Editors in DPD from Rs. 400/- p.m. to Rs. 800/- p.m. with effect from 1-9-1987.

44. Approved the extension of the tenure of grant-in-aid enquiry on 'Studies on some Ayurvedic Medicinal Plants used as Anti-convulsants' under Dr. P.V. Sharma for a period of one year from 10-6-1987 with an annual expenditure of Rs. 33,000/-.

45. Approved the establishment of a Unit for evaluation of indigenous anti-fertility drugs and to find out the mechanism of action, toxicity effects etc. at P.G.I., Chandigarh subject to concurrence of the Department of Family Welfare.

46. Approved the revision of scales of two posts of Accountants (Deputationists) from CAG/CDA etc. from Rs. 1640-2900 to Rs. 2000-3200 and redesignation of the posts as Section Officer (Accounts).

47. Approved the procurement of various equipments for the C.R.I. (Siddha), Madras at an estimated cost of Rs. 3.13 lakhs.

48. Approved the construction of building complex for Regional Research Institute (Ay.), Calcutta at Salt Lake area at a tentative outlay of Rs. 131.50 lakhs for a covered area of 42,000 sq. ft.

49. Approved the provision of internal partition of office and laboratories in the Central Research Institute (Ay.), Bombay at an estimated cost of Rs. 2,62,069/-.

50. Approved the payment of architectural fees to the Central Design Bureau for Medical Health Building (DGHS) to the extent of 2% of the total cost of construction of combined Councils' building at Janakpuri subject to adjustment in the departmental charges payable to CPWD.

51. Approved the revised estimates for 1987-88 and budget estimates for 1988-89 of the Council.

52. Adopted the audited statement of accounts for the years 1986-87 and also ratified the adoption of Annual Report of the Council for the year 1986-87.

53. Approved the payment of salary to the employee of the Departmental Canteen at the rate of Rs. 500/- p.m. from 15-9-1987 onwards and release of Rs. 10,000/- for procurement of non-recurring items etc.

54. Approved the creation of the post of Binder-cum-Feeder in the scale of Rs. 950-1400 in the DPD, New Delhi.

55. Approved the guidelines including terms and conditions for sanction of grant-in-aid enquiries under the Council and suggested that the matter regarding revision of staff and expenditure pattern for operating schemes may be considered by SAC (Ay.).

56. Authorised the President of the Council to reconstitute the S.A.C. (Ay.) and S.A.C. (Siddha).

57. Ratified the decision taken by the President of the Council for hiring a building with an approximate area of 6,700 sq. ft. at CPWD/PWD assessed rent for establishment of IPD at RRC (Ay.), Nagpur.

58. Ratified the decision taken by the President of the Council for the addition of 10 bedded IPD facilities in the Regional Research Centre (Ay.), Mandi and also approved the revised staff pattern.

59. Ratified the decision of the President of the Council for acceptance of arbitration award relating to enhancement of rent in respect of the building occupied by Central Research Institute (Ay.), Delhi.

60. Requested the President of the Council to take appropriate decision in regard to working pattern of Ayurvedic Research Unit functioning at NIMHANS, Bangalore so that this unit is permitted to work there as before.

61. Approved the proposal for addition of IPD facility in Dr. A. Laxmipathi Research Centre for Ayurveda located in the campus of VHS, Madras subject to the condition that no additional staff would be added to the Centre and the expenditure on the maintenance of the IPD would be met by VHS for

which Council would bear an expenditure of Rs. 50/- per patient per day limited to 10 beds subject to a maximum ceiling of Rs. 1.85 lakhs per annum.

62. Decided that the Regional Research Institute (Ayurveda) functioning at Lucknow should continue to function there itself.

63. Desired that the establishment of Institutes with specialities in certain areas like Balaroga, Prasuti Tantra, Shalya Shalakya should be considered in the Council through S.A.Cs. for making suitable recommendations to the Governing Body.

64. Suggested that in view of the interest developing in Ayurveda in the West and Europe, the Council should make more efforts to develop the technology in various branches of Ayurveda by proper evaluation and orientation.

65. Appreciated the achievement of the Council in extracting musk from male musk deer without sacrificing the animal and suggested that the Council should standardise the technique so that this process could be propagated with authority and got patented.

66. Approved to maintain the separate entity of the Regional Research Institute (Ay.), Jaipur under the CCRAS and the proposal for its merger with National Institute of Ayurveda, Jaipur should be treated as withdrawn.

67. Decided while appreciating the review report on the activities of the Council that the Governing Body will discuss exclusively the technical achievements of the CCRAS in another meetings specifically fixed for the purpose.

68. Approved the proposal to upgrade the scale of pay of the post of Director, IIHM from Rs. 3000-5000 to Rs. 3700-5000 in view of duties and responsibilities attached to the post.

Finance Committee

During the year under report the Standing Finance Committee consisted of the following :—

1. Joint Secretary (ISM), Ministry of Health and Family Welfare. — Shri S.K. Alok, Chairman

2.	Dy. Secretary (IF), Ministry of Health and Family Welfare	—	Shri R.K. Jindal, Member
3.	One technical member to represent Ayurveda	—	Vd. B.D. Triguna
4.	One technical member to represent Siddha	—	Dr. J.R. Krishnamurthy
5.	Director of the Council	—	Dr. V.N. Pandey Member-Secretary,

The Finance Committee met on 19th May and 8th June, 1987, 7th August, 1987 and 4th January, 1988 during the reporting period and dealt with various financial aspects of the affairs of the Council.

Representation of Scheduled Castes/Scheduled Tribes in the Council Services and Welfare Measures for SC/ST

The Council is following the orders and guidelines laid down by the Government of India in respect of reservation and representation of SC/ST in the services of the Council. The Council is maintaining rosters in respect of all categories of staff according to the brochure on reservation of SC/ST candidates and recruitment/promotion is done strictly following the roster points. The Council is having a total staff strength of 1522 employees and representation of SC/STas on 1-1-1988 is as under :—

Group	No. of employees	SC	Percentage of total employees	ST	Percentage of total employees
A	111	3	2.70	1	0.90
B	101	6	5.94	1	0.90
C	703	77	10.95	14	1.99
D	607	195	32.12	37	6.09
Total	1522	281	18.46	53	3.48

The Council is having seven Tribal Health Care Research Projects which have been specially located in Tribal pockets. These

programmes envisage a great scope not only to understand the local health problems and inter-dependent issues but also to identify and apply/advise the methods and measures suitable to surmount them. Besides, some of the research centres are also located in rural areas. Through OPD/IPD of Institutes/Centres and under Mobile Clinical Research Programme and Community Health Care Research Programme, medical relief and incidental benefits have been extended to a large number of SC/ST population. The budget of the Council stipulates specific allocations for SC/ST component plans.

Official Language Implementation Committee

The Council is having an Official Language Implementation Committee under the Chairmanship of the Director, CCRAS to review the position regarding implementation of Official Language Act/Policy/Rules, Orders, Programmes etc. and to suggest measures for increasing the pace of Hindi in the Council.

During the period under report, the Committee met and reviewed the progress made in the use of Hindi for the official purposes and made suitable recommendations for the progressive use of Hindi in the Council.

Scientific Advisory Committee (Ayurveda)

1. Dr. S.T. Gujar	—	Chairman
2. Vd. Nanak Chand Sharma	—	Member
3. Vd. B.D. Triguna	—	Member
4. Dr. P.K. Warrier	—	Member
5. Dr. K. Sadashiv Sharma	—	Member
6. Vd. Channabasappa	—	Member
7. Vd. S.K. Mishra	—	Member
8. Dr. A.V. Rama Rao	—	Member
9. Dr. S.K. Jain	—	Member
10. Dr. R.M. Verma	—	Member
11. Dr. N.K. Bhide	—	Member
12. Prof. P.V. Sharma	—	Member
13. Dr. S.P. Kinjwadekar	—	Member
14. Director, CCRAS	—	Member-Secretary

The Scientific Advisory Committee (Ay.) met on 4th August, 1987 during the period under report and evaluated various research programmes/schemes of the Council and provided necessary guidance.

Scientific Advisory Committee (Siddha)

1. Dr. J.R. Krishnamurthy	—	Chairman
2. Dr. A.M. Faisuddeen Ahmed	—	Member
3. Dr. R. Kannan	—	Member
4. Dr. A.V. Rama Rao	—	Member
5. Dr. N.K. Bhide	—	Member
6. Dr. V. Subramanian	—	Member
7. Director, CCRAS	—	Member-Secretary

The Scientific Advisory Committee (Siddha) met on 5th August, 1987 during the period under report and conducted its terms of references and the recommendations are placed before the Finance Committee/Governing Body for consideration and approval.

Organisational Network of the CCRAS

There are 12 Central/Regional Research Institutes, 10 Regional Research Centres, 26 Research Units, 5 Tribal Health Care Research Projectsin Ayurveda, one Documentation and Publication Division, 12 Family Welfare Research Units and one Research Project on Tibetan Medicines besides two Research Institutes, 10 Research Units and two Tribal Health Care Research Projects in Siddha System of Medicine. Nine time bound Research Enquiries were also in operation. During the period under report, the Council has also established a Medicinal Plants Garden-cum-Demonstration Centre at Itanagar.

Budget Provision

The following table shows the budgetary provisions made for the Council at a glance :—

Scheme	Actual Expenditure 1986-87	Budget Estimates 1987-88	Revised Estimates 1987-88	Actual Expenditure 1987-88
		(Rs. in lakhs)		
Plan	75.60	180.00	120.00	96.35
Non-Plan	384.80	395.70	385.00	432.32
F.W.R.S.	12.87	14.00	13.60	11.30

Audited Statement of Accounts

The accounts of the Council for the year 1987-88 (for the period from 1st April, 1987 to 31st March, 1988) were audited by D.A.C.R.

TECHNICAL REPORT—AYURVEDA

Abbreviations used for Institutes/Centres/Units

S. No.	Institutes/Centres/Units	Abbreviations
(1)	(2)	(3)
1.	Central Research Institute (Ay.), New Delhi	CRID
2.	Central Research Institute (Ay.), Bhubaneshwar	CRIBh
3.	Central Research Institute (Ay.), Bombay	CRIB
4.	Indian Institute of Kayachikitsa, Patiala	IIKP
5.	Indian Institute of Panchkarma, Cheruthuruthy	IIPC
6.	Regional Research Institute, (Ay.) Calcutta	RRIC
7.	Regional Research Institute, (Ay.) Patna	RRIP
8.	Regional Research Institute, (Ay.) Lucknow	RRIL
9.	Regional Research Institute, (Ay.) Gwalior	RRIG
10.	Regional Research Institute, (Ay.) Jaipur	RRIJ
11.	Regional Research Institute, (Ay.) Junagadh	RRIJu
12.	Regional Research Institute, (Ay.) Trivandrum	RRIT
13.	Regional Research Centre, (Ay.) New Itanagar	RRCI
14.	Regional Research Centre, (Ay.) Gauhati	RRCGa
15.	Regional Research Centre, (Ay.) Gangtok	RRCG
16.	Regional Research Centre, (Ay.) Mandi	RRCM
17.	Regional Research Centre, (Ay.) Jammu	RRCJ
18.	Regional Research Centre, (Ay.) Hastinapur	RRCH
19.	Regional Research Centre, (Ay.) Jhansi	RRCJh
20.	Regional Research Centre, (Ay.) Nagpur	RRCN
21.	Regional Research Centre, (Ay.) Vijayawada	RRCV
22.	Regional Research Centre, (Ay.) Bangalore	RRCB
23.	Mobile Clinical Research Unit, Varanasi	MCRUB
24.	Mobile Clinical Research Unit, Jamnagar	MCRUJ

(1)	(2)	(3)
25.	Dr. A. Lakshmipati Research Centre for Ayurveda, V.H.S., Madras	ALRCAM
26.	Ayurvedic Research Unit, NIMH&NS, Bangalore	ARUB
27.	Clinical Research Unit (Ay.), Hyderabad	CRUH
28.	Clinical Research Unit (Ay.), Kottakal	CRUK
29.	Clinical Research Unit (Ayurvedic and Modern Team under CDRS), Varanasi	CDRSV
30.	Amalgamated Units, Tarikhet	AUT
31.	Captain Srinivasamurthy Drug Research Institute for Ayurveda, Madras	CSMDRIAM
32.	Jawahar Lal Nehru Ayurvedic Medicinal Plants Garden, Herbarium and Museum, Pune	JNAMPGHP
33.	Clinical Research Unit under FWRP, Ahmedabad	CRUFA
34.	Clinical Research Unit under FWRP Trivandrum	CRUFT
35.	Clinical Research Unit under FWRP, Varanasi	CRUFV
36.	Pharmacological Research Unit under FWRP, Jamnagar	PhRUFJ
37.	Pharmacological Research Unit under FWRP, Varanasi	PhRUFV
38.	Pharmacological Research Unit under FWRP, Bhubaneshwar	PhRUFB
39.	Pharmacological Research Unit under FWRP, Trivandrum	PhRUFT
40.	Pharmacological Research Unit, Calcutta	PhRUC
41.	Pharmacological Research Unit, Lucknow	PhRUL
42.	Pharmacological Research Unit, Jodhpur	PhRUJ
43.	Pharmacological Research Unit, Varanasi	PhRUV
44.	Pharmacological Research Unit, Trivandrum	PhRUT
45.	Toxicity Research Unit, Jhansi	TRUJh
46.	Chemical Research Unit, Calcutta	ChRUC
47.	Chemical Research Unit, Varanasi	ChRUV

(1)	(2)	(3)
48.	Chemical Research Unit, Hyderabad	ChRUH
49.	Chemical Research Enquiry, Lucknow	ChREL
50.	Pharmacognosy Research Unit, Calcutta	PcRUC
51.	Pharmacognosy Research Unit, Pune	PcRUP
52.	Indian Institute of History of Medicine, Hyderabad	IIHMH
53.	Literary Research Unit, Thanjavur	LRUT
54	Documentation and Publication Division, New Delhi	DPDD
55.	Tribal Health Care Research Project (Ay.), Car-Nicobar	THCRPC
56.	Tribal Health Care Research Project (Ay.), Ziro	THCRPZ
57.	Tribal Health Care Research Project (Ay.), Palamau	THCRPP
58.	Tribal Health Care Research Project (Ay.), Jhabua	THCRPJ
59.	Tribal Health Care Research Project (Ay.), Chinchapada	THCRPCh
60.	Drug Standardisation Research Project, Jamnagar	DSRPJ
61.	Drug Standardisation Research Project, Varanasi	DSRPV
62.	Research Project in Tibetan System of Medicine, Leh	RPTSML
63.	Amla Cancer Hospital, Trichur	ACHT

CLINICAL RESEARCH PROGRAMME

The Clinical Research Programme in Ayurveda under the Council consists of clinical therapeutic trials on single drugs, compound formulations and simple herbomineral preparations on selected clinical conditions besides the field studies relating to Health Care Research services through Service Oriented Survey and Surveillance Research Programme, Community Health Care Research Programme and Tribal Health Care Research Programme.

Clinical Therapeutic Trials

With a view to implement the Clinical Research Programme allotted vide Programme Projection 1986-90, a Expert Committee was constituted for finalisation of clinical protocols/working papers on different clinical conditions which met at Bangalore and New Delhi and finalised them. Copies of these protocols/working papers have been circulated to the concerned Institutes/Centres/Units for implementation. While finalising the clinical protocols/working papers, care has been taken to systematise the diagnosis and subsequent assessment of the research cases by including specific laboratory investigations into the criteria laid down for diagnosis as well as for subsequent assessment. But facilities for a number of laboratory investigations essentially required for the diagnosis and assessment of a number of clinical conditions could not be made available to a number of Institutes/Centres/Units due to paucity of funds even for minimum need based requirements. This matter was reviewed during senior officers meeting held on 21st and 22nd March, 1988 at New Delhi and it was emphasised that whatever facilities are available that should be utilised to the possible extent. Accordingly efforts are in process to implement the clinical protocols/ working papers already finalised and circulated to the Institutes/ Centres/Units. The present chapter provides the details of the work carried out under clinical therapeutic trials. The different clinical conditions studied during the reporting period include Amavata (Rheumatoid arthritis), Pakshavadha (Hemiplegia), Gridhrasi (Sciatica), Pangu (Paraplegia), Saisaveeyavata (Poliomyelitis),

Amlapitta (Hyperacidity), Parinamasula (Duodenal ulcer), Annadravasula (Gastric ulcer), Grahani roga (Malabsorption syndrome), Krimi roga (Parasitic infestation), Tamaka swasa (Bronchial asthma), Sweta pradar (Leucorrhoea), Kitibha (Psoriasis), Madhumeha (Diabetes mellitus), Mutra kriccha (Dysuria), Raktachapa (Hypertension), Hridroga (Ischaemic heart diseases), Sleepada (Filariasis), Visham jwara (Malaria) and Arbuda vishesh (Cancer). Clinical studies on Mutrashmari (Urolithiasis) and Vrikka shota (Chronic nephritis) have also been taken up during the reporting period. Efforts have also been made to consolidate the work carried out so far under these studies which has resulted into the publication of six clinical monographs on different clinical conditions like Visham jwara (Malaria), Kamala and Yakrit disorders (Jaundice and liver disorders), Mutrashmari and Mutrakriccha (Urinary tract calculi and urinary disorders), Jatharagni and Dhatwagni (Concept of metabolism), Paurush granthi vriddhi (Enlarged prostate), Timir roga (initial stages of cataract). During the execution of clinical studies, medical aid was provided to 3,19,559 patients (1,20,752 new and 1,98,807 old) through Out-patient Departments and 2,400 patients through In-patient Departments functioning at different Institutes/Centres of the Council. A brief review of each of clinical therapeutic trials indicating the line of treatment, name of the Institutes/Centres/Units where the work was carried out together with the total number of cases of particular disease condition, included into the study and results thereof is provided hereunder.

Amavata (Rheumatoid arthritis)

The clinical therapeutic trials on Amavata (Rheumatoid arthritis) were conducted at CRI, Delhi, Bhubaneshwar, IIP, Cheruthuruthy, IIK, Patiala, RRI Gwalior, Calcutta, RRC Jammu and Itanagar. A total number of 256 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Amavata (Rheumatoid arthritis) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Vatari, guggulu, Yogaraja guggulu, Vishtinduk vati, Kaishore guggulu, Rasnadi kwatha and Amavatari rasa.	CRID	33	—	7	8	4	3	11
2.	Sunthi guggulu.	CRIBh	17	2	4	4	6	—	1
3a.	Mustha churna and Baluka sweda.	IIPC	5	—	—	—	2	—	3
b.	Aswagandha churna and Baluka sweda.		3	—	—	—	—	—	3
c.	Panchakarma therapy with Moorchana taila.		5	—	1	—	2	—	2
4.	Yogaraja guggulu, Rasna saptak kwatha with patra pinda sweda.	IIKP	68	—	1	12	17	12	26
5a.	Mustaka churna and Baluka sweda.	RRIC	70	—	5	5	16	6	38

Contd.

Com. = Complete, rel. = Relief, Mark. = Marked, Mode. = Moderate.

1	2	3	4	5	6	7	8	9	10
5b.	Sunthi guggulu.	RRIC	21	—	2	1	2	3	13
6.	Aswa-gandha churna.	RRIG	5	—	—	—	2	—	3
7.	Trikustha guggulu tablet	RRCJ	8	—	2	3	1	1	1
8.	Aswa-gandha churna and Baluka sweda or Prasarani taila.	RRCI	21	5	—	3	5	—	8
	Total		256	7	22	36	57	25	109

Pakshavadha (Hemiplegia)

The clinical therapeutic trials on Pakshavadha (Hemiplegia) were conducted at IIP Cheruthuruthy, IIK Patiala, CRI, Bhubaneshwar and Delhi. A total number of 141 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Pakshavadha (Hemiplegia) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Panch-karma therapy with Tila taila.	IIPC	43	—	1	—	11	23	8

Contd.

1	2	3	4	5	6	7	8	9	10
2.	Madi taila IIPC externally and Matravasti.		40	—	—	7	9	16	8
3a.	J.J.*taila IIPC internally.		1	—	—	—	1	—	—
b.	Masha taila internally and externally with Pancha-karma therapy.		2	—	—	—	—	—	2
4a.	Yograja IIKP guggulu, Rasna saptak kwatha and Abhyanga with Mahanarayan taila.		25	—	—	1	12	4	8
b.	Abhrak IIKP bhasam, Praval pisthi and Abhyanga.		6	—	—	—	4	—	2
5a.	Katuki CRIBh guggulu.		1	—	—	1	—	—	—
b.	Sameer pannaga rasa.		4	—	2	—	—	1	1
6.	Ekangvir CRID rasa, Masha taila and Dashmool bhaspa sweda.		19	1	—	6 (P.R.)**	—	3	9
	Total		141	1	3	15	37	47	38

*J.J.—Jatamansi and Jyotishmati

**P.R.—Partial relief

Gridhrasi (Sciatica)

The clinical therapeutic trials on Gridhrasi (Sciatica) were conducted at IIP, Cheruthuruthy and CRI, Bhubaneshwar. A total number of 34 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Gridhrasi (Sciatica) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Bhala-taka churna with milk.	IIPC	10	4	1	1	—	4	—
2a.	Samana with P.V.* taila.	IIPC	3	—	2	—	—	—	1
b.	P.M.** kwatha internally and P.V. taila externally.		4	—	—	1	1	1	1
c.	Panchakarma with P.V. taila.		11	2	5	2	1	—	1

Contd.

*P.V. Taila—Prabhanjana vimardanam taila

**P.M.=Placebo

1	2	3	4	5	6	7	8	9	10
2d.	Samana and Panchakarma with P.V. taila.		3	2	—	1	—	—	—
3.	Hingutri- guna taila.	CRIBh	3	1	1	1	—	—	—
	Total		34	9	9	6	2	5	3

Pangu (Paraplegia)

The clinical therapeutic trials on Pangu (Paraplegia) were conducted at IIP, Cheruthuruthy. A total number of 21 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Pangu (Paraplegia) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Goro- chanadi gutika, Aswagandha churna internally and Balaswa- gandhadi taila externally.	IIPC	3	—	—	—	—	2	1

Contd.

1	2	3	4	5	6	7	8	9	10
b.	Pancha-karma with Moorchana taila.	IIPC	2	1	—	—	1	—	—
2a.	Samana with P.V.* taila.	IIPC	4	—	—	1	2	1	—
b.	P.M.** kwatha internally and P.V.* taila externally.		5	—	—	—	—	3	2
c.	Panchakarma with P.V. taila.		1	—	—	—	—	—	1
d.	Panchakarma and Samana with P.V. taila.		6	—	—	2	2	1	1
	Total		21	1	—	3	5	7	5

*P.V. Taila—Prabhanjana vimavrdanam taila

**P.M.—Placebo

Saisaveeyavata (Poliomyelitis)

The clinical therapeutic trials on Saisaveeyavata (Poliomyelitis) were conducted at IIP, Cheruthuruthy and CRI, Delhi. A total number of 53 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Saisaveeyavata (Poliomyelitis) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1a.	Aswagandha churna, Gorochanadi gutika internally and Balaswagandhadi taila externally.	IIPC	3	1	—	—	2	—	—
b.	Ekangvir rasa with Eranda taila internally and Mahamasha taila externally.	IIPC	3	1	—	—	1	—	1
2a.	Balaswagandhadi taila internally and externally.	IIPC	4	—	—	—	1	—	3
b.	P.M. Kwatha internally and Balaswagandhadi taila externally.		3	—	—	—	1	2	—
c.	P.M. Kwatha internally, Balaswagandhadi taila externally and shastikasali pinda sweda.		3	1	—	—	2	—	—

Contd.

1	2	3	4	5	6	7	8	9	10
d.	Balaswa-gandhadi taila internally and externally with shastikasali pinda sweda.		3	—	—	—	1	1	1
3.	Ekangvir rasa and Masha taila.	CRID	34	3	—	16	—	3	12
	Total		53	6	—	16	8	6	17

Annadravasula (Gastric ulcer)

The clinical therapeutic trials on Annadravasula (Gastric ulcer) were conducted at RRC, Itanagar and Clinical Research Unit, Kottakkal. A total number of 63 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Annadravasula (Gastric ulcer) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1a.	Praval pisti and Jahar mohara pisti.	RRCI	49	18	7	4	8	2	10

Contd.

1	2	3	4	5	6	7	8	9	10
b.	Sutasekhar rasa and Dhatri lauha.		4	4	—	—	—	—	—
2a.	Indu- kanta ghrita (Sodhana and samana).	CRUK	2	1	—	—	—	1	—
b.	Indukanta ghrita (Samana).		1	—	—	—	—	1	—
c.	Mahatiktaka ghrita (Sodhan and Samana).		3	1	—	1 (P.R.)	—	1	—
d.	Control group (Placebo).		4	—	—	—	—	4	—
	Total		63	24	7	5	8	9	10

Amlapitta (Hyperacidity)

The clinical therapeutic trials on Amlapitta (Hyperacidity) were conducted at CRI, Bhubaneshwar, Delhi, RRI, Junagadh, RRC, Nagpur, Hastinapur, Mandi, Clinical Research Unit, Kottakkal and Hyderabad. A total number of 274 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Amlapitta (Hyperacidity) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Susta- sekhar rasa, Dhatri lauha andKamadugha rasa.	CRIBh	15	4	—	5 (P.R.)	—	—	6
2a.	Satavari.	CRID	3	—	3	—	—	—	—
b.	Satavari yoga.		5	2	2	1	—	—	—
c.	Satavari yoga, Kamdugha rasa and Sutasekhar rasa.		11	—	7	—	1	1	2
3a.	Sarjika kshara, Jahar mohara pisti with Amalaki swarasa.	RRIJu	12	—	7	3	1	—	1
b.	Diet control.		28	—	4	12	8	—	4
4.	Avipat- tikar churna and Kapara- dika bhasma.	RRCN	2	1	—	—	—	—	1
5.	Avipat- tikar churna and Shankha bhasma.	RRCH	16	—	—	3	1	—	12

Contd.

1	2	3	4	5	6	7	8	9	10
6a.	Sarjika kshara, Jahar mohara pisti and Amalaki swarasa.	RRCM	6	—	2	—	2	—	2
b.	Avipattikara churna, Kapardika bhasma, Sarjika kshara and Amalaki swarasa.		6	—	2	—	1	—	3
c.	Sutasekhar rasa, Jahar mohara pisti and Shankha bhasma.		79	5	6	17	30	1	20
d.	Avipattikar churna and Sutasekhar rasa.		36	1	6	3	10	—	16
7a.	Indu- kanta ghrita (Sodhan and Samana).	CRUK	3	2	—	1 (P.R.)	—	—	—
b.	Indukanta ghrita (Samana).		2	—	—	1 (P.R.)	—	1	—
c.	Mahatiktaka ghrita (Sodhan and samana).		6	2	—	3 (P.R.)	—	1	—
d.	Mahatiktaka ghrita (Samana).		2	1	—	—	—	1	—
e.	Control group (Placebo).		6	—	—	—	—	6	—

Contd.

1	2	3	4	5	6	7	8	9	10
8a.	Bilva patra (Amashaya sodhan).	CRUH	6	2	—	—	3	—	1
b.	Amalaki churna and Sarjika kshara.		30	16	3	—	—	—	11
	Total		274	36	42	49	57	11	79

Parinamasula (Duodenal ulcer)

The clinical therapeutic trials on Parinamasula (Duodenal ulcer) were conducted at CRI, Bhubaneshwar, RRI, Trivandrum, Clinical Research Unit, Kottakkal and Hyderabad. A total number of 210 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparation on Parinamasula (Duodenal ulcer) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1a.	Sutasekhara rasa, Kamdugha rasa and Dhatri lauha	CRIBh	18	8	—	—	—	—	10

Contd.

1	2	3	4	5	6	7	8	9	10
1b.	Sutasekhara rasa with Amalaki swarasa.		5	4	—	1 (P.R.)	—	—	—
2.	Nimbidin. RRIT		11	1	3	—	—	—	7
3a.	Indukanta CRUK ghrita (Sodhana and samana).		32	22	—	8 (P.R.)	—	2	—
b.	Indukanta ghrita (samana).		12	2	—	9 (P.R.)	—	1	—
c.	Mahatiktaka ghrita (Sodhana and Samana).		39	29	—	7 (P.R.)	—	3	—
d.	Mahatiktaka ghrita (Samana).		15	8	—	6 (P.R.)	—	1	—
e.	Control group (Placebo).		24	—	—	—	—	24	—
4a.	Bilva patra CRUH (Amashya sodhana).		39	9	6	—	12	—	12
b.	Indukanta ghrita.		15	8	1	—	—	—	6
	Total		210	91	10	31	12	31	35

Pravahika (Dysentry)

The clinical therapeutic trial on Pravahika (Dysentry) was conducted at RRC, Gangtok on 66 patients using Jatiphaladi churna, Mahashankhavati, Chitrakadi vati and Hingwastak churna. The study showed complete relief in 23 patients, marked relief in 19 patients, moderate relief in nine patients, mild relief in 12 patients and no relief in three patients.

Grahani roga (Malabsorption syndrome)

The clinical therapeutic trials on Grahaniroga (Malabsorption syndrome) were conducted at CRI, Bhubaneshwar and Delhi. The study conducted by CRI, Bhubaneshwar using Sunthi churna on seven patients showed complete relief and moderate relief in two patients each. No relief was seen in one patient and two patients discontinued the study. Out of the five cases studied by CRI, Delhi using Kutajadi vishesh yoga, Panchamrit parpati and Chitrakadi vati, marked relief and moderate relief was seen in one patient each while mild relief was seen in two patients and no relief in one patient.

Krimi roga (Parasitic infestation)

The Clinical therapeutic trials on Krimi roga (Parasitic infestations) were conducted at RRC, Mandi and Hastinapur. The study conducted on 108 patients using Krimimudgar rasa showed complete relief in 12 patients, marked relief in five patients, moderate relief in 25 patients and mild relief in 37 patients. No relief was observed in four patients while 25 patients discontinued the study.

Ankush krimi (Hook worm)

The clinical therapeutic trial on this disease condition was carried out at CRU (Ayud.), Kottakkal. A total number of 26 patients of hook worm confirmed by stool examination were included into the study and divided into two groups. Hingutriguna taila was provided in one group consisting of 12 patients. After treatment, stool examination in this group showed no evidence of hook worm infestation in nine patients.

The second group consisting of 14 patients was studied using Allopathic medicine (Alcopar). In this group, after treatment stool examination showed no evidence of hook worm infestation in eight patients.

Gola krimi (Round worm)

The clinical therapeutic trial on gola krimi (round worm) was conducted at CRI, Bhubaneshwar and CRU (Ayud.), Kottakkal. 23 positive cases of round worm were studied using krimighna vati by CRU (Ayud)., Kottakkal. After treatment stool examination showed no evidence of round worm Infestation in 18 patients. Out

of the eight positive cases of Gola krimi studied at CRI, Bhubaneshwar using Kampillak churna two patients showed no evidence of gola krimi infestation after treatment.

Amaja grahani (Giardiasis and Entamoeba histolitica)

The clinical therapeutic trials on nine patients of Giardiasis and six patients of Entamoeba histolitica using Dadimastaka churna were conducted at CRU (Ayud.), Kottakkal. In these studies after treatment stool examination showed no positive evidence of Girdia in seven patients and Entamoeba histolitica in five patients.

Kamala (Jaundice)

The clinical therapeutic trial on Kamala (Jaundice) were conducted at RRC, Mandi and Hastinapur. A total number of five cases were included into the study. The treatment group consisted of Punarnava mandoor, Arogyavardhini vati and Sarjika kshara/ Kumaryasav. The treatment provided showed mild relief in two patients and no relief in one patient while two patients discontinued the study.

Yakrit vridhi (Liver enlargement)

The clinical therapeutic trial on Yakrit vridhi (Liver enlargement) was conducted at CRI, Delhi using Sharpunkha bhasma and Arogyavardhini vati with kwatha of Varun, Sigru and Sadabahar. Out of the five cases included into the study marked relief was observed in one case, moderate relief in two cases and no relief in one case while one case discontinued the study.

Raktarsh (Bleeding piles)

The clinical trials on Raktarsh (bleeding piles) were conducted at IIK, Patiala and RRI, Gwalior. The study conducted at IIK, Patiala using Arshari vati on 28 patients showed marked relief in one patient, moderate relief in four and mild relief in two patients while remaining 21 patients discontinued the study. Out of the 30 patients studied at RRI, Gwalior using Balbhadra rasa 15 patients got marked relief, nine patients got mild relief and no relief was seen in two patients while four patients discontinued the study.

Tamaka swasa (Bronchial asthma)

The clinical therapeutic trials on Tamaka swasa (Bronchial asthma) were conducted at CRI, Bhubaneshwar, Delhi, IIK, Patiala, RRI, Junagadh, Patna, Calcutta, Gwalior and RRC, Vijayawada. A total number of 311 cases have been treated adopting different the therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Tamaka swasa (Bronchial asthma) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Swasa kuthar rasa, Talisadi or Sitopaladi churna, Vasavaleha and Kanakasava.	CRIBh	18	2	4	2	2	1	7
2.	Krama vardhman pippali	CRID	57	—	11	14	8	4	20
3a.	Nardiya laxmi vilas rasa mishran	IIKP	19	—	—	4	4	3	8
b.	Swasa kuthar rasa mishran		29	—	1	10	8	1	9
4a.	Bhagottara gutika.	RRIJu	7	—	1	3	2	—	1

Contd.

1	2	3	4	5	6	7	8	9	10
b.	Somalata, Kustha, Kantakari and Narsar.		8	—	—	3	1	—	4
c.	Mallasindur and shankha bhasma.		3	—	—	2	—	—	1
5.	Haridra khanda.	RRIP	71	1	7	23	21	4	15
6.	Somalata churna, Shringarabha and Swasakuthar rasa.	RRIC	9	—	—	—	4	2	3
7.	Bhagottara gutika.	RRIG	62	1	19	1	21	16	4
8.	Lasuna, Haridra and Yashti churna.	RRCV	28	6	4	3	—	—	15
	Total		311	10	47	65	71	31	87

Pratishyaya (Common cold)

The clinical therapeutic trials on Pratishyaya (Common cold) was conducted at RRC, Bangalore using compound preparation containing Pippali, Maricha, Sunthi, Rasa sindura and Tambula patra swarasa. The study conducted on 29 patients showed significant relief in the majority of cases.

Sweta pradara (Leucorrhoea)

The clinical therapeutic trials on Sweta pradara (Leucorrhoea) were conducted at IIP, Cheruthuruthy, CRI, Bhubaneshwar, Delhi and RRI, Junagadh. A total number of 76 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Sweta pradara (Leucorrhoea) at a glance

Sl. No.	Therapy	Instt./ Centre/ Units	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1a.	Aswagandha churna Patrangasava and Nirgundi tailapichu.	IIPC	17	2	5	—	1	7	2
b.	Aswagandha churna and Patrangasava.		1	—	—	—	—	1	—
2.	Punarnava mandoor, Lodhrasava and Nirgundi taila (Pichu).	CRIBh	24	5	2	2	4	—	11
3a.	Kukkutandatwak bhasma.	CRID	7	—	3	—	1	—	3
b.	Pushyanug churna.		11	—	3	4	2	—	2
4.	Swaranavang, Kukkutandatwak bhasma and Punarnava mandoor.	RRIJu	16	—	5	8	—	—	3
	Total		76	7	18	14	8	8	21

Rakta pradara (Metrorrhagia)

The clinical therapeutic trials on Rakta pradara (Metrorrhagia) were conducted at CRI, Bhubaneswar, Delhi and RRI, Junagadh. A total number of 41 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Rakta pradara (Metrorrhagia) at a glance

Sl. No.	Therapy	Instt. Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1.	Kamdugdha rasa.	CRIBh	4	1	1	—	1	—	1
2a.	Dhatrayadi churna.	CRID	18	6	2	6	2	2	—
b.	Kamdugdha rasa.		5	2	—	—	1	—	2
3a.	Kamdugdha rasa and Durvasvarasa.	CRID	4	2	—	—	1	—	1
b.	Balbhadra. rasa and paksha kwatha.		1	—	—	1	—	—	—
4.	Kamdugdha rasa and Durvasvarasa.	RRIJu	9	—	3	4	—	—	2
	Total		41	11	6	11	5	2	6

Kastartava (Dysmenorrhoea)

The clinical therapeutic trial on Kastartava (Dysmenorrhoea) was conducted at IIK, Patiala using Pushyanuga churna and Prataplankeshwar rasa on 32 patients. The study showed complete relief in four patients, marked relief in 12 patients and moderate relief in 16 patients.

Yonivyapada

The clinical therapeutic trial on Yonivyapada was conducted at CRI, Delhi. A total number of seven cases were included into the study. The treatment group consisted of Kaishore guggulu, Dasmoola kwatha or Panchavalkal kwatha or Triphala kwatha and Pichu with Jatyadi taila. The study showed complete relief and marked relief in two patients each and mild relief in one patient while two patients discontinued the study.

Medoroga (Obesity)

The clinical therapeutic trials on Medoroga (Obesity) were conducted at RRI, Gwalior and RRC, Mandi. A total number of 12 cases were studied at RRI, Gwalior using AYUSH-55. The study showed marked relief in three patients, mild relief in one patient and no relief in one patient while seven patients discontinued the study. Out of 15 patients studied at RRC, Mandi using Arogyavardhini vati, Swetaparpati, Goksuradi guggulu and Punarnavasava, marked relief and mild relief was seen in one patient each. Three patients each got moderate relief and no relief while seven patients discontinued the study.

Madhumeha (Diabetes mellitus)

The clinical therapeutic trials on Madhumeha (Diabetes mellitus) were conducted at CRI, Delhi, RRI, Calcutta and Dr. A. Lakshmipati Research Centre for Ayurveda, Madras. A total number of 78 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Madhumeha (Diabetes mellitus) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results				
				Good res.	Fair res.	Poor res.	No res.	Drop out
1	2	3	4	5	6	7	8	9
1.	AYUSH-82 and Sudha Shilajit.	CRID	38	15	9	5	4	5
2.	Nygrodhadi churna and Bhumiamalaki.	RRIC	25	4	3	6	3	9
3.	Bimbi	ALRCAM	15	—	7	5	—	3
		Total	78	19	19	16	7	17

Mutrakriccha (Dysuria)

The clinical therapeutic trials on Mutrakriccha (Dysuria) were conducted at CRI, Delhi, RRC, Itanagar, Hastinapur and Mandi. A total number of 59 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Mutrakriccha (Dysuria) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1a.	Pasana-bheda ghanasatva	CRID	2	—	—	—	1	1	—
b.	Trikantkadi kwatha.		10	1	2	2	—	1	4
2.	Brihat trinpanchamool kwatha and Sweta parpati.	RRCI	20	5	4	2	4	1	4
3.	Gokshu-radi guggulu.	RRCH	9	1	—	1	4	—	3
4a.	Sweta-parpati and Punarnava mandoor.	RRCM	13	2	—	4	2	—	5
b.	Pashanabheda kwatha.		5	1	—	1	2	—	1
		Total	59	10	6	10	13	3	17

Mutrashmari (Urolithiasis)

The clinical therapeutic trials on Mutrashmari (Urolithiasis) were conducted at CRI, Delhi and RRC, Mandi. A total number of 14 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Mutrashmari (Urolithiasis) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1.	Sweta parpati.	CRID	5	2	—	—	—	3	—
2a.	Sweta parpati with kwatha of Kulath,Pashana-bheda and Gokshura.	RRCM	2	—	1	—	—	—	1
b.	Sweta parpati with Kulath kwatha.		7	—	4	—	—	1	2
		Total	14	2	5	—	—	4	3

Two cases using Gokshuradi guggulu, Sweta parpati and kwatha of Kulatha, Trinapanchmoola, Punarnava, Varun and Shigru were studied at CRU (ATand MT), Varanasi and stone was found absent in both the cases after three months treatment.

Vrikka sotha (Chronic Nephritis and Nephrotic syndrome)

The clinical therapeutic trials on Vrikka sotha was initiated during the reporting period by CRU (Ayurvedic Team and Modern Team), Varanasi using Kwatha of Punarnava, Trinapanchmoola, Gokshura, Varuna and Shigru. Chandraprabha vati and Insulin was also administered in the two cases of Diabetic Neuropathy. Nine patients were included into the study. The study showed clinical improvement as well as improvement in biochemical parameters like blood urea and serum creatinin levels.

Raktachapa (Hypertension)

The clinical therapeutic trials on Raktachapa (Hypertension) were conducted at CRI, Delhi, IIK, Patiala, RRI, Calcutta and

RRC, Mandi. A total number of 65 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Raktachapa (Hypertension) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1.	Arjun Ksheer pak, Sankhapushpi churna and Sarpagandhavati.	CRID	23	—	3	7	13	—	—
2.	Arjun twak vati.	IIKP	25	—	1	3	4	—	17
3.	Tagaradi churna.	RRIC	4	—	—	—	—	1	3
4a.	Shankha-pushpi mishran	RRCM	8	1	—	—	3	—	4
b.	Sarpagandha ghanavati.		5	2	—	—	1	—	2
	Total		65	3	4	10	21	1	26

The role of Pushkarmool and Guggulu in the cases of Ischaemic heart diseases and hypertension CDRSV

This study was continued further and 27 new cases were included into the study during the reporting period. The study showed statistically highly significant fall in serum cholesterol, serum triglycerides and serum total lipids besides fall in body weight after six months of treatment. Majority of the cases got fair relief from

precardial pain dyspnoea and palpitation. There was significant improvement in ECG of six cases and improvement in ECG of 18 cases. Overall assessment of these cases showed good response in 22 cases and mild to moderate response in five cases.

Vishamajwara (Malaria)

The clinical therapeutic trials on established cases of Vishamajwara (Malaria) were conducted at RRI, Janagadh, Jaipur and Dr. A. Lakshmipati Research Centre for Ayurveda, Madras. A total number of 22 cases have been treated using AYUSH-64. The following table summarises the details related to the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparation on Vishamajwara (Malaria) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1.	AYUSH-64	RRIJu	12	12	—	—	—	—	—
2.	AYUSH-64	RRIJ	3	1	2	—	—	—	—
3.	AYUSH-64	ALRCAM	7	5	—	—	—	2	—
	Total		22	18	2	—	—	2	—

Vishamajwara (Symptomatic cases)

The clinical therapeutic trials on Vishamajwara (Symptomatic cases) werec onducted at RRC, Nagpur, Itanagar, Hastinapur, Jammu, Gangtok, Mandi and RRI, Jaipur. A total number of 184 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparation on Vishamajwara (Symptomatic cases) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop rel.
1.	AYUSH-64	RRCN	20	18	—	—	—	1	1
2.	AYUSH-64	RRCI	26	15	—	—	—	3	8
3.	AYUSH-64	RRCH	3	3	—	—	—	—	—
4.	AYUSH-64	RRCJ	41	27	—	—	5	5	4
5.	AYUSH-64	RRIJ	25	14	5	—	4	2	—
6.	AYUSH-64	RRCG	10	2	—	1	1	—	6
7a.	AYUSH-64	RRCM	45	19	7	—	2	—	17
b.	Mahasudarshan churna and Godanti bhasma.		14	10	—	2	—	—	2
	Total		184	108	12	3	12	11	38

Slipada (Filariasis)

The clinical therapeutic trials on Slipada (Filariasis) were conducted at CRI, Bhubneshwar, RRC, Vijaywada and Nagpur. A total number of 100 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Slipada (Filariasis) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild. rel.	No rel.	Drop out
1a.	AYUSH-64	RRCV	9	2	1	3	1	1	1
b.	Gomutra haritaki.		47	3	7	9	6	7	15
2.	AYUSH-64 and Nimbapatra swarasa.	RRCN	18	—	—	—	7	3	8
3a.	AYUSH-64	CRIBh	13	6	2	—	—	—	5
b.	Saptaparna-ghanavati.		3	3	—	—	—	—	—
c.	Sudarshana ghana vati, Arogyavar-dhini vati and Punaravarista		10	1	1	—	4	—	4
	Total		100	15	11	12	18	11	33

In addition to the above studies CRI (Ay.), Bhubneshwar has also conducted clinical therapeutic trial on 10 cases of microfilaremia and 30 cases of manifested disease in the field contitions during Health Care Research Programme The study on microfilaremia cases using AYUSH 64 showed good response in three cases, fair response in two cases, poor response in one case and no response in four cases. Out of the 30 cases of manifest disease studied using Sudarshanghan vati/Sudarshan churna and Arogyavardhini vati good response was seen in one case, fair response in two and poor response in six while no response was seen in 15 cases and six cases discontinued the study.

Kitibha (Psoriasis)

The clinical therapeutic trial on Kitibha (Psoriasis) was conducted at RRI, Trivandrum. A total number of 47 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Kitibha (Psoriasis) at a glance

Sl. No.	Therapy	Total cases	Results					
			Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1a.	Nimbatiktam and Lajjalu keram.	26	3	8	8	4	3	—
b.	Arogyavardhini and Chakramarda keram.	5	—	—	1	3	—	1
c.	Kaishore guggulu and Viswamitra kapala taila.	4	—	—	—	3	1	—
d.	Nimbatiktam and Petroleum ether extract of coconut shell.	12	1	—	3	4	3	1
	Total	47	4	8	12	14	7	2

Vicharchika (Oozing eczema)

The clinical therapeutic trials on Vicharchika (Oozing eczema) were conducted at IIP, Cheruthuruthy, RRI, Trivandrum and RRC, Itanagar. A total number of 70 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Vicharchika (Oozing eczema) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1a.	Patolathri-phladi churna internally and Rasothamadi externally.	IIPC	12	5	2	—	—	—	5
b.	Patolathri-phladi churna internally and Nalpamaradi externally.	IIPC	7	3	1	—	1	—	2
2a.	Chakra-marda kwatha and Chakarmarda kera.	RRIT	14	5	1	1	—	—	7
b.	Manjishtadi kwatha and Arkapatra swarasa.		7	4	2	—	—	—	1
c.	Kaishore guggulu and Arka patra swaras taila		4	1	—	—	—	—	3
3.	Tuvark churna and sudha gandhak	RRCI	26	6	2	2	5	2	9
	Total		70	24	8	3	6	2	27

Pama (Scabies)

The clinical therapeutic trials on Pama (Scabies) were conducted at IIP, Cheruthuruthy and RRC, Itanagar. A total number of 124 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Pama (Scabies) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1a.	Patolathri—phaladi churna internally and Rasothamadi externally.	IIPC	10	3	1	—	—	—	6
b.	Patolathri-phaladi churna internally and Nalpamaradi externally.		7	2	3	—	—	—	2
c.	Panchatikta kashaya internally and Rasothamadi externally.		16	5	4	—	1	—	6

Contd.

1	2	3	4	5	6	7	8	9	10
	d. Panchatikta kashya internally and Nalpamaradi externally.		15	6	3	—	1	—	5
	e. Panchatikta kashaya internally and Thamboola taila externally.		3	1	2	—	—	—	—
2.	Tuvark churna and sudha gandhak.	RRCJ	73	14	11	8	14	3	23
	Total		124	31	24	8	16	3	42

Switra (Vitiligo)

The clinical therapeutic trials on Switra (Vitiligo) were conducted at IIP, Cheruthuruthy, RRC, Hastinapur and Mandi. A total number of 35 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Switra (Vitiligo) at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results					
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1.	Dhathryadi churna and Avalgujabeejadi vati.	IIPC	10	3	1	—	2	—	4
2.	AYUSH-57	RRCH	11	—	—	—	1	—	10
3a.	Arogya-vardhinivati and Rasamanikya with sarivadyasava.	RRCM	11	—	4	—	3	—	4
b.	Kanchanara guggulu, Kaishore guggulu and Rasamanikya with Sarivadyasava.		3	—	—	—	1	—	2
	Total		35	3	5	—	7	—	20

In addition to this 11 cases of Switra were included into the study of AYUSH-57 by RRI, Trivandrum and all these cases were continuing the treatment at the end of the reporting period.

Twakroga

The clinical therapeutic trials on Twakroga were conducted at RRC, Gangtok and Mandi. A total number of 120 cases have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results.

Table

Results of clinical therapeutic trials of Ayurvedic preparations on Twakroga at a glance

Sl. No.	Therapy	Instt./ Centre/ Unit	Total cases	Results				
				Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.
1.	Sudha gandhak, Haridrakhand and Arogyavardhini vati.	RRCG	27	4	5	3	10	5
2a.	Arogya-vardhini vati and Rasamanikya with Sarivadyasava.	RRCM	70	5	5	19	35	6
b.	Kanchanar guggulu, Kaishore guggulu and Rasmanikya with sarivadyasava.		23	1	2	6	13	1
	Total		120	10	12	28	58	12

Apasmara (Epilepsy)

The clinical therapeutic trial on Apasmara (Epilepsy) was conducted at CRI, Delhi and ARU, Bangalore. Out of the 44 patients studied at CRI, Delhi using AYUSH-56, complete control of fits was seen in 16 patients, marked cont ol in 14 patients and no control in seven patients while remaining seven patients discontinued the study. Out of the eight patients included into the study of Apasmara by ARU, Bangalore using AYUSHMAN-13, 14 and 18 only two patients had completed the study which showed marked control.

Chittodevega (Anxiety neurosis)

The clinical therapeutic trial on this disease condition was conducted at Dr. A Lakshmipathi Research Centre for Ayurveda,Madras. A total number of ten patients were included into the study and devided into two groups consisting of five patients each. One group was studied using ALURIM compound which consisted of Mandookaparni, Yashti, Jatamansi and Ksheerbala taila. Out of the five patients studied in this group marked relief was observed in three patients and mild relief in one patient while one patient discontinued the study. The second group was studied using ksheerbala capsules out of which marked relief was seen in three patients, mild and no relief in one patient each.

Galganda (Goitre)

The clinical therapeutic trial on Galganda (Goitre) was conducted at RRC, Gangtok on eight patients using Kanchnar guggulu, Godanti bhasma and Punarava mandoor. The study showed moderate relief in one patient and mild relief in three patients while remaining four patients discontinued the study.

Arbuda Vishesh (Cancer)

During the reportlng period 10 cases of oral cancer were studied by Grant-in-aid Unit, Trichur using STG compound in the doses of 50 mg. thrice a day. All these cases had undergone modern treatment viz. surgery, radiation and chemotherapy prior to the inclusion into the study. The treatment with this drug for three months showed mild symptomatic relief for a short period.

Amchi Research Unit, Leh-Laddakh

During the reporting year the unit has carried out study on 20 cases of chooser (Eczema) using compound drug Lhodot chhogyat, Sposkarchupa and a ointment Zablac ryatpa. The treatment was found to be quite useful paticularly in oozing eczema. The unit has also attended 2,713 patients at OPD level.

A survey to some hilly region of Sham for locating Sheelajit forming rockes was also undertaken by the unit. Samples of good quality of sheelajit i.e. golden Sheelajit was collected during the survey.

Statement showing disease groups, number of patients studied and participating projects during 1987-88.

Sl. No.	Disease groups	No. of patients	Participating projects
1	2	3	4
1.	**Vatavyadhi**		
	(a) Amavata	256	GRID, CRIBh, IIKP, RRIC, RRIG, RRCJ, RRCI
	(b) Pakshavadha	141	IIPC, IIKP, CRIBh, CRID
	(c) Gridhrasi	34	IIPC, CRIBh
	(d) Pangu	21	IIPC
	(e) Saisaveeyavata	53	IIPC, CRID
2.	**Amlapitta, Parinamasula**		
	(a) Annadravasula	63	RRCI, CRUK CRID,
	(b) Amlapitta	274	CRIBh, RRIJu, RRCN, RRCH, RRCM, CRUK, CRUH
	(c) Parinamasula	210	CRIBh, RRIT, CRUK, CRUH
3.	**Pravahika, Grahniroga**		
	(a) Pravahika	66	RRCG
	(b) Grahniroga	12	CRIBh, CRID
4.	**Other Udar roga**		
	(a) Krimi roga	108	RRCM, RRCH
	(b) Ankush krimi	26	CRUK
	(c) Gola krimi	31	CRUK, CRIBh
	(d) Amajagrahni	15	CRUK
	(e) Kamala	5	RRCM, RRCH
	(f) Yakrit vridhi	5	CRID
	(g) Raktarsh	58	IIKP, RRIG
5.	**Swasa, Pratisyaya**		
	(a) Tamak swasa	311	CRIBh, CRID, IIKP, RRIJu, RRIP, RRIC, RRIG, RRCV
	(b) Pratisyaya	29	RRCB

Contd.

1	2	3	4
6.	**Stri roga**		
	(a) Sweta pradara	76	IIPC, CRIBh, CRID, RRIJu
	(b) Rakta pradara	41	CRIBh, CRID, RRIJu
	(c) Kastartava	32	IIKP
	(d) Yonivyapada	7	CRID
7.	**Madhumeha, Mutra roga**		
	(a) Medo roga	27	RRIG, RRCM
	(b) Madhumeha	78	CRID, RRIC, ALRCAM
	(c) Mutrakrichha	59	CRID, RRCI, RRCH, RRCM
	(d) Mutrasmari	16	CRID, RRCM, CDRSV
	(e) Vrikkashota	9	CDRSV
8.	**Raktachapa**	65	CRID, IIKP, RRIC, RRCM
9.	**Hridroga**	27	CDRSV
10.	**Vishamajwara**		
	(a) Vishamajwara (Malaria)	22	RRIJu, RRIJ, ALRCAM
	(b) Vishamjwara (Symptomatic cases)	184	RRCN, RRCI, RRCH, RRCJ, RRCG, RRCM, RRIJ
11.	**Slipada**	140	RRCV, RRCN, CRIBh
12.	**Twak roga**		
	(a) Kitibha	47	RRIT
	(b) Vicharchika	70	IIPC, RRIT, RRCI
	(c) Pama	124	IIPC, RRCI
	(d) Switra	46	IIPC, RRCH, RRCM, RRIT
	(e) Twak roga	120	RRCG, RRCM
13.	**Manas roga**		
	(a) Apasmara	52	CRID, ARUB
	(b) Chittodevega	10	ALRCAM
14.	**Galganda**	8	RRCG
15.	**Arbuda vishesh**	10	ACHT

Statement of the patients attended at OPD and admitted/discharged in the IPD during 1987-88

Sl. No.	Institute/Centre/Unit	Number of patients attended					Percentage of bed occupancy
		O.P.D.			I.P.D.		
		New	Old	Total	Admitted	Discharged	
1	2	3	4	5	6	7	8
1.	CRI, Delhi	15702	18737	34439	340	315	51.63
2.	CRI, Bhubaneshwar	7218	9111	16329	197	194	33.06
3.	IIK, Patiala	7681	7062	14743	205	208	30.09
4.	IIP, Cheruthuruthy	12427	45035	57462	208	210	74.50
5.	CRI, Bombay	498	1039	1537	Not yet started		
6.	RRI, Lucknow	9661	12747	22408	16	16	2 03
7.	RRI, Calcutta	4214	17133	21347	70	72	38.83
8.	RRI, Junagadh	4796	10997	15793	64	60	18.00
9.	RRI, Patna	4256	6328	10584	92	82	78.65
10.	RRI, Jaipur	3957	3712	7669	137	131	44.27
11.	RRI, Gwalior	6235	5473	11708	122	120	30.00

Contd.

1	2	3	4	5	6	7	8
12.	RRI, Trivandrum	3888	12655	16543	104	109	78.00
13.	RRC, Nagpur	1651	4731	6382	Not yet started		
14.	RRC, Itanagar	3954	6728	10682	55	52	27.97
15.	RRC, Vijayawada	4982	7519	12501	54	52	51.00
16.	RRC, Gangtok	5914	2920	8834	91	89	46 25
17.	RRC, Jhansi	1713	1951	3664	Not sanctioned		
18.	RRC, Mandi	5544	3822	9366	170	167	56.83
19.	RRC, Hastinapur	6410	6728	13138	106	106	41.00
20.	RRC, Jammu	6502	9178	15680	85	69	63.66
21.	RRC, Bangalore	1312	3532	4844	Not yet started		
22.	CRU, Kottakkal	—	—	—	186	180	88.82
23.	CRU, Hyderabad	—	—	—	77	85	
24.	ARU, Bangalore	365	828	1193	14	16	49.00
25.	ALRCA, Madras	—	—	—	7	7	—
26.	Amchi Research Unit, Leh	1872	841	2713	—	—	—
	Total	1,20,752	1,98,807	3,19,559	2,400	2,340	—

Health Care Research Programme :

Health Care Research Programme of the Council consists of Service Oriented Survey and Surveillance Research Programme, Community Health Care Research Programme and Tribal Health Care Research Programme. These programmes operate at the selected villages around the location of Institutes/Centres/Units carrying out these programmes. The work of these programmes was reviewed and recommended for further continuation during the meeting of senior officers held at New Delhi on 21st and 22nd March, 1988. The details of the work carried out during the reporting period under each of these three programmes is provided hereunder :

1. **Service Oriented Survey and Surveillance Research Progromme**

This progromme envisages survey of each and every house of the selected villages for extending medical aid to the diseased persons at their door steps and collection of data pertaining to the diseased persons with regard to their illness using the prescribed proforma specifically designed for the purpose. Informations about the socio-economic status of the village, natural resources, the standard and type of treatment available to the rural folk are also collected. During the reporting period 40 villages consisting of a population of 67,404 individuals have been covered and incidential medical aid extended to 17,932 individuals (Annexure-I).

In addition to the details of work reported above Mobile Clinical Research Unit, Varanasi has carried out the following clinical trials during the survey work in the villages :

1. Study on the effect of Kutaj churna in the treatment of Atisara (Diarrhoea) and Pravahika (Dysentry).
2. Study on the effect of Mandoor bhasma in Pandu (Anaemia).
3. Study on the effect of Udumbar twak kwatha in the treatment of Pradara (Leucorrhoea/vaginitis).

A total of 230 patients were included into these studies. The following table summarises the details related to the number of cases treated together with the results :

Table

Results of clinical therapeutic trials of Ayurvedic preparations at a glance

Sl. No.	Disease	Total cases	Result of treatment					
			Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1.	Atisara	66	38	11	5	7	3	2
2.	Pravahika	48	24	6	8	5	1	4
3.	Pandu (Group A dose-1 gm.)	26	—	14	6	2	3	1
	(Group B dose-2 gm.)	26	5	13	6	—	1	1
4.	Pradara	64	45	10	7	—	—	2

2. **Community Health Care Research Programme**

This programme envisages adoption of the selected villages for extending medical aid and for creating awareness through group discussions/lectures regarding the ways and means to be adopted for maintenance of health and prevention of diseases besides acquainting the rural folk about the herbs locally available together with their uses so that many of the common ailments may be treated by the locally available resources. While extending medical aid detailed information about the diseased persons are also collected in the prescribed proforma. During the reporting period 43 villages consisting of a population of 51,106 individuals have been covered and incidental medical aid provided to 16,991 patients (Annexure-II). During execution of this programme school children of a number of villages were also benefited by way of their health check-up and medical aid.

3. **Tribal Health Care Research Programme**

This programme has been initiated with the aim to study living conditions of tribal people, folk medicines used by them, occurrence of medicinal plants in the area, propagation of knowledge about oral hygiene, prevention of diseases, uses of common medicinal plants available in the area and to extend medical aid at their door steps. This programme has been continued further by the Tribal

Health Care Research Projects functioning at Car-Nicobar (Andaman-Nicobar Island), Ranka Block, District Palamau (Bihar), Chinchapada District Dhule (Maharashtra), Rama Block, District Jhabua (Madhya Pradesh) and Ziro (Arunachal Pradesh). During the reporting period 32 tribal pockets/villages consiting of a population of 53782 indivdvals have been covered and incidental medical aid extended to 29495 individuals (Annuxure-III).

In addition to this, Tribal Health Care Research Project, Ziro has carried out clinical trials on Atisara, Amlapitta, Kandu and Vicharchika in the field conditions. A total number of 147 cases of these disease conditions have been treated adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases treated together with the results :—

Table

Results of clinical therapeutic trials of Ayurvedic preparations at a glance

Sl. No.	Name of the Disease and Therapy	Results of treatment						
		Total cases	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	Drop out
1.	Atisara (Kutajaghan vati and Kutajavaleha)	50	18	—	10	8	9	5
2.	Amlapitta (Avipattikar churna and Kamdugha rasa)	30	13	2	6	1	6	2
3.	Kandu (Suddha Gandhak, Vakuchi churna internally and Marichadi taila externally.	35	12	1	3	5	8	6
4.	Vicharchika (Suddha Gandhak, Vakuchi churna internally and Marichadi taila externally).	32	8	—	—	12	5	7

Annexure—I

Statement of work carried out during 1987-88 under Service Oriented Survey and Surveillance Research Programme

Sl. No.	Name of the Institute/ Centre/Unit	Name of the Villages covered	Population of the villages covered	*Number of patients treated	Name of the common diseases
1	2	3	4	5	6
1.	IIP, Cheruthuruthy	Enkakkad, Thonnurkkara	7424	3685	Vatavyadhi, Sirahsula, Kasa, Krimi, Swasa, Mukha roga, Sandhisula, Katisula, Twaka roga, Jwara, Gridhrasi, Udarsula.
2.	RRI, Calcutta	Kantatala, Tardaha	5586	3926	Atisara, Amlapitta, Pandu, Tvaka roga, Pradara. Kasa, Swasa, Vatavyadhi, Prameha. Krimi and Jwara.
3.	RRC, Nagpur	Kanhan	7861	871	Swasa, Udarsula, Sandhisula, Vatavyadhi, Pratisyaya, Vishamjwara and Pravahika.

*Includes patients treated from neighbouring villages who attended for treatment.

4.	RRC, Hastinapur	Darayapur, Nidawali	4500	769	Kasa, Udarsula, Vatavyadhi, Mukhroga, Atisara, Jwara, Swasa, Kostabadhata and Katisula.
5.	RRC, Vijayawada	Rayanapadu	470	108	Dourbalya, Urahsula, Sandivatha, Sirahsula, Vrana, Katisula, Jwara, Kasa.
6.	MCRU, Jamnagar	Gaduka, Hapa Gr.	1498	527	Vrana, Kasa, Jwara, Atisara and Udarsula.
7.	MCRU, Varanasi	Sheorampur, Sulemanpur, Laxamanpur	6800	1593	Striroga, Atisara, Krimiroga, Panduroga, Pravahika and Kuposhanjanya roga.
8.	RRC, Jammu	Jaswan, Simbali, Ghatlal	1135	269	Amlapitta, Jwara, Kasa, Tvakroga, Raktavikara, Atisara, Vatavyadhi and Krimi.
9.	RRC, Bangalore	Dasae, Gowdena, Palaya	900	—	Netraroga, Twakroga, Udarsula, Pravahika, Jwara, Kasa, Atisara, Pandu.
10.	CRI, Bhubneshwar	Dandamukundapur	13000	1850	Sandhisula, Tvakaroga, Krimi, Pravahika, Udarsula, Kandu, Katisula, Mukharoga, Atisara.

1	2	3	4	5	6
11.	RRC, Guwahati	Garal. Hamakhya, Athiaboi	4000	293	Amavata, Jwara, Kasa, Amlapitta, Krimi roga, Atisara, Pratisyaya, Pandu.
12.	CRI, Delhi	Kamaruddin Nagar	538	751	Amlapitta, Pratisyaya. Atisara, Raktachap, Vrana, Rakta vikara, Jwara, Prameha and Pradara.
13.	RRI, Gwalior	Sigora, Purani Chawni, Tehlari	6000	1057	Kasa, Vrana, Netraroga, Agnimandya, Atisara, Jwara, Sandhisotha.
14.	RRI, Jaipur	Mansarkheri, Ramratanpura	2036	689	Raktavikara, Vrana, Pratisyaya, Karnaroga, Kasa, Abhishyanda, Jwara.
15.	RRI, Patna	Hardasbigha	2000	72	Twakroga, Kasa, Krimi, Atisara, Pradara, Vrana.
16.	RRC, Gangtok	Chandmari, Sherwani, Upper vurturk and Saramsa	—	146	Vrana, Kasa, Pratisyaya, Kandu, Vatavyadhi, Dourbalya.

17.	RRC, Jhansi	Imalia, Rund Karari	1500	176	Kasa, Jwara, Krimi, Atisara
18.	IIK, Patiala	Bagrian	1000	544	Swasa, Udarsula, Jwara, Kasa, Amavata, Pratisyaya, Amlapitta.
19.	RRC, Mandi	Behali, Nagachala	1156	606	Kasa, Pratisyaya, Atisara, Amlapitta, Pradara, Katisula, Jwara.
	Total	40	67,404	17,932	

Annexure—II

Statement of work carried out during 1987-88 under Community Health Care Research Programme

Sl. No.	Name of the Institute/Centre/ Unit	Name of the villages covered	Population of the villages covered	*Number of patients treated	Name of the common diseases
(1)	(2)	(3)	(4)	(5)	(6)
1.	RRI, Junagadh	Vijayapur, Palasva	4300	291	Twakroga, Udarsula, Vatavyadhi, Jwara, Kasa, Swasa, Pratisyaya and Atisara.
2.	IIP, Cheruthuruthy	Puthuruthy ongallur	17024	4080	Katisula, Sirahsula, Vatavyadhi, Urahsula, Udarsula, Pandu, Kasa, Twakroga, Mukhroga, Jwara, Krimiroga.
3.	RRI, Calcutta	Chakbarali	925	1052	Amlapitta, Atisara, Kasa, Krimi, Jwara, Twakroga.
4.	RRC, Itanagar	Pachin, Midpu	1440	1092	Atisara, Kasa, Pama, Udarsula, Jwara, Amlapitta, Jwara, Atisara.

Contd.

*Includes patients treated from neighbouring village who attended for treatment.

5.	RRC, Nagpur	Dhamna	1557	1495	Pratisyaya, Kasa, Katisula. Varana, Vicharchika, Sandhisula, Pandu and Vatavyadhi.
6.	RRC, Hastinapur	Palara, Morekala	—	1292	Jwara, Kasa, Udarsula, Swasa, Vatavyadhi, Pratisyaya, Pidika, Atisara, Kostabadhta.
7.	RRC, Jammu	Dubsudan	800	228	Pratisyaya, Jwara, Kasa, Atisara, Pravahika, Twakroga, Rakta-vikara.
8.	RRC, Bangalore	Chikkae Gowdana Palaya	492	829	Jwara, Atisara, Pravahika, Vrana, Twakroga, Katisula, Pandu.
9.	CRI, Bhubaneshwar	Chandaka, Arisol, Angarpada	4800	1174	—
10.	RRC, Guwahati	Maghuwapara, Deusatal, Chakardoh	2000	146	Pratisyaya, Jwara, Kasa, Twakroga, Amlapitta, Atisara, Krimiroga.
11.	ALRCA, Madras	Thurat Pakkam, Thurat Pakkam Colony, Muttai Karan, Chavadi, Mettuk-kuppam, Seevaram Pettai	6214	200	Switra, Pratisyaya, Jwara, Vrana, Vatavyadhi, Kasa, Udarsula.
12.	AU, Tarikhet	—	—	1866	Vatavyadhi, Jwara, Kasa, Kandu, Udarroga, Pradara, Krimi, Agnimandya.

(1)	(2)	(3)	(4)	(5)	(6)
13.	RRI, Gwalior	Parsen, Tehlari, Mahal Goan,	—	891	Jwara, Vrana, Udarsula, Atisara, Netraroga, Vatavyadhi, Pradara.
14.	RRI, Jaipur	Machwa	2300	469	Vrana, Twakroga, Kasa, Jwara, Grahniroga, Udarsula, Vataroga.
15.	RRI, Patna	Imadpur Sultan, Dharampur	926	178	Kasa, Twakroga, Atisara, Amavata, Vrana
16.	RRC, Gangtok	Dikling, Chungtham, Lochan, Mumtham and Barving	—	275	Udarsula, Kasa, Jwara, Kandu, Varana, Twakroga, Katisula.
17.	RRC, Jhansi	Round belord, Belora Rajapur	6703	459	Kasa, Jwara, Twakroga, Pratisyaya, Atisara, Udarsula, Vishamjwara.
18.	IIK, Patiala	Reethkheri	1000	25	Jwara, Kasa, Amlapitta, Pratisyaya, Udarsula
19.	RRC, Mandi	Kothi, Moliseri	655	949	Kasa, Pradara, Krimi, Mukharoga, Vishamjwara, Twakroga.
	Total	43	51,106	16,991	

Statement of work carried out during 1987-88 under Tribal Health Care Research Programme

Sl.	Name of the Tribal Project	Name of the Tribal pockets covered	Population of Tribal pockets covered	*Number of patients treated	Name of the common diseases
1	2	3	4	5	6
1.	Ziro	Doimukh, Lampia, Mudan Tage, Michi, Bamin	18185	302	Vatavyadhi, Udarsula, Kasa, Jwara.
2.	Palamau	Bishrampur, Bhadua, Bhaopur, Barahdari, Barwahu, Katra, Chutiya, Baligarh, Gobeardaha, Birajpur, Kushawar, Tetardih, Homiya, Durjam, Barwa, Bairiya, Sirka, Mangarhi, Ramkanda, Madgari, Saraidih, Jamauti, Garhwa, Khardiha	32059	27491	Amlapitta, Atisar, Ajirna, Dantsula, Krimi, Katisula, Vishamjwar, Kasa, Jwara, Netraroga, Krimi, Galganda, Pradar, Pravahika, Vrana, Katisula, Karnaroga.

(1)	(2)	(3)	(4)	(5)	(6)
3.	Chinchapada	Khatgon, Shravani	2813	351	Udarsula, Jwara, Twakroga, Vatavyadhi, Katisula, Pradara, Pandu.
4.	Car Nicobar	(Extended medical aid through OPD to 1090 patients)			Kasa, Swasa, Vatavyadhi, Vishamjwara, Kandu, Sirahsula.
5.	Jhabua	Gadwara	725	261	Madatyaya, Kasa, Swasa, Udarroga, Jwara, Agnimadhya, Vishamjwara.
	Total	32	53,782	29,495	

*Includes patients treated from neighbouring tribal pockets/villages who attended for treatment.

MEDICO-BOTANICAL SURVEY

Vegetable drugs (Dravyas) play dominant role in Ayurveda and it is of paramount importance to explore the medicinal flora of the country and procure authentic drugs for research purposes. Hence, survey of medicinal plants occupies a pivotal position in the field of drug research. The Council has established several survey units in the different areas of the country extending from Jammu to Trivandrum and Junagadh to Itanagar. These units, in different climatic and altitudinal conditions have extended their work from alpine Himalayan ranges to the coastal areas and also penetrating into Arid zones of the country to achieve their objectives of qualitative and quantitative evaluation of the herbal wealth and thus greatly helped in the estimation of Medico-botanical potential of the country. These different units have provided clues and materials for identification of drugs which are mentioned in Ayurvedic literature but the botanical identification was hitherto not clear/unknown. The Survey study has also helped in collecting information on the habits/customs/social studies particularly in the tribal pockets of the country, while carrying out the Medico-Ethno-Botanical Survey.

The brief resume of the exploratory work carried out by the 17 Medico-Botanical Survey Units of the Council spread over 16 states of the country during the year 1987-88 is as follows :—

Andhra Pradesh **RRCV**

The survey unit located at Vijaywada carried out two medico-botanical survey tours in the district Vizianagaram covering the entire area falling under this district and the other in the Eluru forest division of the district Krishna and Godavari. During the survey work, the unit collected a total number of 109 plant specimens representing 61 families, 102 genera and 106 species. A total of 109 specimens were poisoned, mounted and identified for adding to the herbarium. A total of 100 folklore claims were also collected. About 52 drug samples were added to the museum. About 13.7 kg of the crude drug material of 12 medicinal species were collected and supplied for research purpose.

Arunachal Pradesh **RRCI**

The survey unit located at Itanagar carried out survey tours to Banderdewa and Pasighat forest divisions and covered a large number of forest areas. During the survey work, the unit collected 245 plant specimens tentatively representing about 63 families, 110 genera and 231 species. A total of 563 plant specimens were accessioned, 440 specimens mounted and 1000 specimens poisoned. A total of 23 drug samples were added to the museum. About 45kg. of the plant material of nine medicinal species were collected for supply purpose. Five folklore claims were also collected.

Assam **RRCGa**

The survey unit located at Guwahati conducted medico-botanical explorations in the reserve forests of Kamrup district and Dhubri forest division and covered about nine forest areas. During the survey work, the unit collected 37 plant specimens representing tentatively 18 families, 29 genera and 37 species. A total of 25 plant specimens were accessioned, 75 specimens mounted and 375 specimens poisoned. 15.5 kg. of the dried crude drug material consisting of 14 medicinal species were collected for supply. A total of 12 folklore claims and three drug samples for museum were also collected.

Bihar **RRIP**

The survey unit located at Patna surveyed two forest divisions namely Garhwa North and Koderma and covered a total of 49 forest areas in four forest ranges falling under these two forest divisions. During the medico-botanical explorations, the unit collected a total of 894 plant specimens spreading over 298 field book numbers, representing 65 families, 158 genera and 297 species. A total of 840 plant specimens poisoned, 621 specimens mounted and 500 specimens added to the herbarium. Twenty seven drug samples were added to the museum. A total of 40 kg. of the drug material was supplied for research purpose. Twenty two folk-lore claims were also collected.

Gujarat **RRIJu**

The survey unit located at Junagadh surveyed Godhra forest and Veravai and Una Navabandar coastal areas and covered about

12 important forest/coastal areas. During the survey work a total of 75 plant specimens were collected representing 32 families, 58 genera and 73 species. About eight plant specimens are reported to be new to the Centre's herbarium. About 150 plant specimens comprising of 67 species were mounted for herbarium and 550 specimens belonging to 125 species were accessioned. Eleven crude drug samples were added to the museum. A total of 50 85 kg of the crude drug samples of the nine medicinal species were collected and supplied for research purpose. 59 folklore claims were also collected.

Himachal Pradesh **RRCM**

The survey unit located at Mandi conducted 11 local drug collection tours and also conducted survey for locating Ayurvedic medicinal plants in various divisions of Mandi, Nanchan and Suket and covered a large number of areas falling under these three divisions. During these collection tours the unit collected a large number of the plant specimens spreading to 226 field book number representing tentatively 66 families, 178 genera and 226 species. A total number of 130 plant specimens were identified and 90 specimens accessioned. 12 drug samples were added to the museum. About 13 medicinal species were also collected for supply purpose.

Jammu and Kashmir **RRCJ**

The survey unit located at Jammu has undertaken crude drug collection tours in different adjoining areas of Jammu and collected four plant species of Ayurvedic importance for adding to its herbarium. About 257 kg. of the plant material of eight medicinal species was also collected and supplied about 227 kg. for research purpose. Eight drug samples were added to the museum. A total of 211 plant specimens were mounted and about 208 specimens accessioned.

Karnataka **RRCB**

The survey unit located at Bangalore conducted survey work in Shimoga district in West Ghats and covered a large number of areas. About 476 plant specimens representing tentatively 65 families, 190 genera and 196 species were collected. A total of 140 plant specimens were identified and 280 mounted for herbarium. About 200 specimens were accessioned and 150 index cards prepared.

nine drug samples were added to the museum and three crude drug samples were collected for supply purpose.

Kerala **RRIT**

The survey unit located at Trivandrum carried out two medico-botanical survey tours in Munnar and Wynad forest divisions and covered about 12 forest areas falling under four ranges of these two divisions. A total of 500 plant specimens spreading to 136 field book numbers were collected, representing 68 families, 108 genera and 124 species. About 172 plant specimens were accessioned, 290 specimens mounted and 138 poisoned. About 150 plant specimens were identified. 16 drug samples were added to the museum. A total of about 80 kg. of the crude drug material consisting of different drug parts of about 130 medicinal species were supplied for research purpose. 12 folklore claims were also collected.

Madhya Pradesh **RRIG**

The survey unit located at Gwalior conducted survey tour in Sarguja District and covered a large number of forest areas falling under these districts. The different areas covered include Janakpur, Monandragarh forest range and Korea forest division; Ambikapur, Sitapur, Kusmi, Rajpur, Sarga Shankargarh and Sonhat. During the survey work the unit collected plant specimens, spreading to 359 field book numbers representing 86 families, 324 genera and 320 species. A total of 700 plant species were identified, 2500 mounted and 762 accessioned. About 16 drug samples were added to the museum. A total of about 227 kg. of crude drug material consisting of 13 medicinal species was collected for supply purpose. Live stock of 12 medicinal species was also collected for the Herbal Garden of RRC, Jhansi.

Maharashtra **RRCN**

The survey unit located at Nagpur conducted medico-botanical explorations in West Melghat division falling under Amravati circle and covered six forest ranges. A total number of 86 plant specimens representing 36 families, 43 genera and 72 species were collected. About 299 plant specimens were accessioned, 462 specimens mounted and 417 specimens poisoned. About 51 kg. of the plant material of 15 medicinal species was collected for supply purpose. Ten drug samples of plant origin were added to the museum. 110 index cards were prepared. A total of 31 folklore claims were also collected.

Rajasthan **RRIJ**

The survey unit located at Jaipur conducted medico-botanical explorations in Alwar, Bharatpur, Kota, Baran, Jhalawar forest divisions and Sariska Tiger Project and collected a total of 481 plant specimens representing about 126 families, 289 genera and 280 species. A total of 265 plant specimens were mounted, 236 accessioned, 265 specimens poisoned and prepared 7 index cards. Five crude drug samples of vegetable origin were added to the museum. A total of 19 medicinal species weighing about 21 kg. were supplied. 27 folklore claims were also collected.

Sikkim **RRCG**

The survey unit located at Gangtok surveyed Yugtham, Lachaen, Lachung and Bhumdham forest areas and collected a total of 48 specimens of medicinal species and ten folklore claims. The unit also identified 127 plant specimens and added to the herbarium. 281 plant specimens were mounted and 100 poisoned.

Uttar Pradesh **AUT**

The survey unit located at Tarikhet conducted two medico-botanical survey tours, one in high altitude alpine region in Kali Valley of district Pithorgarh and another in Punvagiri—Thuligarh area of district Nainital which is an extension of Kali Valley in Tarai —Babbar belt and covered a large number of areas falling under these districts. A total of 236 plant specimens representing tentatively about 230 species were collected. About 1731 plant specimens were mounted, 1103 specimens accessioned and 708 specimens poisoned. A total of 53 drug samples of 39 medicinal species weighing about 125 kg. were collected for supply purposes. 27 folklore claims were also collected.

RRCJh

The survey unit located at Jhansi carried out survey work in Sitapur, Kusmi and Sonhat forest ranges and covered a number of forest areas falling under these ranges. A total of 400 plant specimens were collected for herbarium and living plants of 12 medicinal species for the herbal garden. About 15 crude drug samples were added to the museum. A total of 100 kg. of the drug

material of about 70 medicinal species were collected for supply purpose.

West Bengal **RRIC**

The survey unit located at Calcutta carried out medico-botanical survey tours in Purulia, Bankura, Buxa and Baikunthapur forest divisions and collected about 1000 plant specimens spreading to 517 field book numbers and tentatively representing about 65 families, 190 genera and 300 species. A total of 266 plant specimens were accessioned, 500 specimens identified, 1100 specimens mounted and poisoned. Fifteen drug samples were added to the museum. About 100 kg. of the plant drug material of 25 medicinal species were collected for supply purpose. A total of 31 folklore claims were also collected.

Abstract of Medico-botanical survey work conducted by different units during the year 1987-88

Sl. No.	Unit	Total forest areas covered	Total plant specimen added to Herbarium	Total drug samples added to Museum	Total plants identified	Drugs Supplied	Total folklore claims collected
1	2	3	4	5	6	7	8
1.	Andhra Pradesh (Vijaywada)	2	—	52	109	14 kg. of 12 medicinal species	100
2.	Arunachal Pradesh (Itanagar)	2	563	23	—	45 kg. of 9 medicinal species	5
3.	Assam (Gauhati)	2	25	12	—	16.00 kg. of 14 medicinal species	12
4.	Bihar (Patna)	2	500	27	—	40 kg.	22
5.	Gujarat (Junagadh)	2	550	11	—	51 kg. of 9 medicinal species	59
6.	Himachal Pradesh (Mandi)	3	90	12	103	—	—

Contd.

1	2	3	4	5	6	7	8
7.	J & K (Jammu)	—	208	8	—	227 kg.	—
8.	Karnataka (Bangalore)	1	200	9	140		
9.	Kerala (Trivandrum)	2	172	16	150	80 kg. of 130 medicinal species	12
10.	Madhya Pradesh (Gwalior)	1	762	16	700	227 kg. of 13 medicinal species	—
11.	Maharashtra (Nagpur)	1	299	10	—	51 kg. of 15 medicinal species	31
12.	Orissa (Bhubneshwar)						
13.	Rajasthan (Jaipur)	6	236	5	—	21 kg. of 19 medicinal species	27
14.	Sikkim (Gangtok)	—	—	—	127	—	10
15.	U.P. (Jhansi)	3	—	15	—	108 kg. of 70 medicinal species	—
16.	U.P. (Tarikhet)	2	1103	—	—	125 kg. of 53 medicinal species	27
17.	West Bengal (Calcutta)	4	266	15	—	100 kg. of 25 medicinal species	31
	Total	33	4974	231	1329	1105 kg.	336

CULTIVATION OF MEDICINAL PLANTS

Our country has a different climatic and geographical situations and many species of medicinal and aromatic plants are found growing right from high Himalayas to deserts, plain and coastal areas and are being utilised in one or the other form. In their natural occurrence, the plants are found scattered and it is difficult as well as uneconomical to collect and to process these plants. Supply from natural sources are also dwindling. Besides there is a large demand for certain plant material from the pharmaceutical industry, the medical care institutions and scientific research organisations and so an imperative necessity to cultivate these on large scale has become an imminent issue. Besides, the demand of plants growing in the high Himalayas and in difficult areas has resulted in the substitution or adulteration of many medicinal species.

With a view to make available the genuine drugs, the Council has taken up experimental and large scale cultivation of important Ayurvedic and Siddha medicinal plants in different regions such as Jhansi (U.P.), Mangliawas (Rajasthan), Pune (Maharashtra), Ranikhet (U.P.) and Itanagar (Arunachal Pradesh).

The Council through these herbal farms have in the first instance taken up experimental small scale cultivation of about 300-350 medicinal plant species of Ayurveda and Siddha importance. This cultivation programme has also provided quality drug material in adequate quantity for research purposes. The plantation includes the tropical, sub-tropical, temperate regions besides exotic ones. These herbal gardens has provided agro-techniques for successful growth of scarcely distributed, threatened plant species.

A brief account of cultivation activities in each of the herbal garden is as given below :

Regional Research Centre, Jhansi

The herbal garden of this Centre has confined its cultivation of medicinal plants programme on about 15 acres of the land out of a total of about 45 acres available with the centre. A total of about

200 medicinal species are presently being grown and properly maintained in the garden. A few medicinal species of Ayurvedic importance have been taken up both on experimental as well as large scale cnltivation. This entire plantation has been represented in the form of demonstration beds, experimental and large scale beds and also in the green house and includes about 52 medicinal species mentioned in Ayurvedic Formulary Part-I.

A few important plants undertaken on mass scale cultivation are Yastimadhu (*Glycyrrhiza glabra*), Satavari (*Asparagus racemosus*), Kumari (*Aloe barbadensis*), Sarpagandha (*Rauwolfia serpentina*), Bakuchi (*Psoralia corylifolia*), Rasna (*Pluchea lanceolata*), Vacha (*Acorus calamus*), Latakasturi (*Hibiscus abelmoschus*), Kalmegh (*Andrographis paniculata*), Prisniparni (*Uraria picta*), Aswagandha-Nagauri variety (*Withania somnifera*). Guggulu (*Commiphora wightii.*)

Some of the important plants belonging to different geographical areas and cultivated on experimental scale for the study of their vegetative and reproductive behaviour are Pasanbheda (*Bergenia ligulata*), Banapsa (*Viola serpenses*), Chopchini (*Smilax aspera*), *Cinnamomum tamala*, Tejbala (*Zanthoxylum alatum*), Mamira (*Thalictrum foliolosum*), Brahmi (*Bacopa monneri*), and *Artimisca* species etc. The successful growth behaviour of these species, a few of which are habitant of high altitudes and their survival at plains under the climatic conditions of Jhansi are quite noteworthy. The other species under experimental observations and for demonstration purposes include Pippali (*Piper longum*), Rasna (*Pluchea lanceolata*), Yastimadhu (*Glycyrrhiza glabra*), Arkapatri (*Tylophora indica*), Tulsikarpura (*Ocimum kilmandscharicum*), Chitrak (*Plumbago zeylanica*), Padmaka (*Prunus cerasoides*), Trivrit (*Operculina terpethum*), Danti (*Baliospermum montanum*), Kebuka (*Costus specious*), Anantmool (*Hemidesmus indicus*) etc.

About 150 medicinal species have been grown in the green house in polythene bags and cement pots and regularly being observed for their adaptability and growth behaviour etc. About 80 important Ayurvedic medicinal plants have also been properly maintained for demonstration purpose. Seeds of about 30 medicinal species were sown in Gamalas/polythene bags for experimental purpose and sapplings of 17 important medicinal species were prepared in polythene bags for undertaking large scale plantation.

Cultivation on large scale of medicinal plants/crepers etc. have also been undertaken along the boundary walls of the garden to protect the access of cattles and other animals in the garden

plantation. The plants grown there include Latakrang, Khadir, Babula, Salmali, Palasha, Arjuna, Bilva, etc.

The produce of the garden is effectively utilised in meeting a part of the drug supply requirement of the Council's different research projects. The drug collection from the garden during the year was about 942 kg. material consisting of different drug parts of about 63 medicinal plant species. Out of this about 820 kg. of the crude drug material was supplied for research purpose.

Guggulu Herbal Farm, Mangliawas (Rajasthan)

Conservation, cultivation and propagation of Guggulu plants and observing its growth behaviour under experimental conditions are the main activities of this herbal farm. The farm at present has a total of 16,956 Guggulu plant growing on mass scale and all possible attempts have been made to properly maintain this entire plantation spread to about 40 acres out of total 142 acres of the land available with the garden. The remaining parts of the land has natural vegetation of Guggulu plants and a few other arid zone medicinal plant species.

A total of 1805 Guggulu plants and 8228 Guggulu cuttings were introduced in the farm during the year and are under experimental observations for their growth behaviour at different stages.

Besides the Guggulu plantation a total of 47 plant species of Ayurvedic importance are also growing in the garden and the important being are Kuberaksha (*Caesalpinia bonduc*), Mahanimba (*Melia azaderach*), Nimba (*Azadirachta indica*), Kumari (*Aloe vera*), Amlaki (*Embelica officinalis*), Satavari (*Asparagus racemosus*), Gokshura (*Tribulus terrestris*), Aragvadha (*Cassia fistula*), Sirish (*Albizia lebbec*), Vanapalandu (*Urgenia indica*), Punarnava (*Boerhaavia difusa*), Guduchi (*Tinospora codifolia*), Gunja (*Abrus precatorious*), and Shalamali (*Bombax ceiba*) etc. This plantation includes about 20 medicinal species mentioned in Ayurvedic Formulary Part-I. The medicinal plants like Kunduru, Kuberaksha, Kumari, Dadima were introduced during September, 1987. The observations on the entire plantation introduced during the year are made on their growth behavior. Different experimental studies made on a few selected medicinal species have given good results for their successful germination under different conditions when propagated through seeds/cuttings. Three exotic species *Euphorbia anticepheletica*, *Dersera hyndersiana* (resembling *Commiphora wightii*) and *Tylophora asthematica* introduced in the garden are growing quite well.

Some collaborative studies have been taken up with S.K.N. College of Agriculture, Jobner for the standardisation of tapping techniques for the extraction of oleo-gum-resin without causing any harm to the Guggulu plant. The studies are still reported to be in progress.

About 19 kg. Guggulu have been collected from the farm and a total of 148 kg. of the crude drug material of 14 medicinal species is at present reported to be in stock. About 20 kg. of Guggulu and seeds/cuttings of Guggulu plant have been supplied to different research projects of the council and other scientific bodies.

Jawahar Lal Nehru Medicinal Plants Garden and Herbarium, Pune

The herbal garden has continued its cultivation programme in about 10 acres, out of 19 acres of the land presently available with the Centre for cultivation purposes. The cultivation of important Ayurvedic medicinal plants, economic and ornamental species have been taken up. The garden at present has about 364 species and most of these species have been maintained for demonstration purposes and a few have been taken up on experimental and large scale cultivation.

The demonstrative garden represents a total of 136 important Ayurvedic species in different beds including 8 species introduced during the reporting period. Some of the important species growing are : Gunja (*Abrus precatorius*), Sariva (*Hemidesmus indicus*), Guduchi (*Tinospora cordifolia*), Sahachara (*Barleria prionitis*), Satavari (*Asparagus racemosus*), Sarpagandha (*Rauvolfia serpentina*), Yastimadhu (*Glycyrrhiza glabra*), Ishwari (*Aristolochia indica*), Meshasringi (*Gymnema sylvestre*), Aswagandha (*Withania somnifera*), Kutja (*Holarrhena antidysenterica*), Atibala (*Abutilon indicum*), Kakamachi (*Solanum nigrum*), Latakasturi (*Hibiscus abelmoschus*), Japa (*Hibiscus rosa-sinensis*), Banjauri (*Vicoa indica*). Eight species newly introduced are; Trivrit (*Operculina turpethum*), Parpata (*Fumaria parviflora*), Dhanvyasa (*Fagonia cratica*), *Cinnamomum verum*, *Anacardium occidentale*, *Cocos coronata*, *Sansevieria zeylanica* and *Kleinhovia hospita*.

Besides this a total of 297 plant species mostly medicinal comprising of annuals and biannuals and perennials are also being grown in different areas of garden other then beds. About half of the entire plantation consist of the medicinal plants included in Ayurvedic Formulary Part-I.

Two important species namely Bakuchi (*Psoralea corylifolia*) and Satavari (*Asparagus racemosus*) have been taken up for experimental cultivation in about 50 plots of 10′ × 10′ size to work out ideal agrotechniques for its successful growth etc. The Farm Yard Mannure has increased the yield of Bakuchi seeds by 40% to 50%. This is considered to be quite remarkable increase. The observations of the effect of Farm Yard Mannure on the yield of Satavari (*Asparagus racemosus*) are still being made.

Three exotic medicinal plants namely *Vinca rosea*, Isabgol (*Plantago psyllium*) and *Manihot esculenta* have also been introduced in the garden and their propagation and growth behaviour in the soil and climatic conditions of Pune are studied. All the species have exhibited healthy growth.

The Centre also carried out certain germination studies on the seeds of about 11 species procured from the Council's different Centres/Institutes. The seeds of only three taxas germinated namely Trivrit (*Operculina turpethum*), Dhanvyasa (*Fagonia cretica*) and Parpata (*Fumaria parviflora*) and out of these Trivrit showed luxuriant growth.

The Centre has also taken up three plant species namely Japa (*Hibiscus rosa-sinensis*), Ushir (*Vetiveria zizanioides*) and Kumari (*Aloe barbadensis*) for large scale cultivation to meet the demand of the various Units of the Council in respect of these drugs. A total of about 700 cuttings of *Hibiscus rosa-sinensis* were raised during the reporting period. Steps were also taken for the multiplication of a few other important species such as Yastimadhu (*Glycyrrhiza glabra*), Vacha (*Acorus calamus*), Mandookparni (*Centella asiatica*) and Brahmi (*Bacopa monnieri*) in order to make germ plasm available to undertake large scale cultivation of these species.

The Centre has also collected about 75 kg. of dry crude drug material consisting of about 24 species from the garden and supplied to different research projects.

In addition to the above activities, this garden also provides technical know-how regarding the cultivation of medicinal plants to several National and International organisations and also to common man interested in the subject by arranging exhibitions at different places of Maharashtra.

Amalgamated Units, Tarikhet

This Centre has its medicinal plants garden at Ranikhet at a distance of about 8 Km. The main activities of this garden is experimental cultivation of saffron and also to study the possibilities of cultivation of important medicinal plants of Ayurveda and Siddha drawn from wild sources by studying their adaptability, growth, flowering and fruiting etc. in the climatic conditions of Ranikhet. The entire cultivation project is carried on about 2.5 acres of land out of a total of 7.89 acres of the land presently available for the purpose. This includes 1.53 acres of the land exclusively confined to saffron experimental cultivation project. In the remaining about one acre of the land, a total of 190 medicinal species mostly of Ayurvedic importance are growing in different beds in the garden and have been properly maintained. Most of these species are for demonstrative purpose but a few important species have been subjected to experimental trials for studying their adaptability, vegetative and reproductive growth behaviour etc. at different time intervals under climatic conditions of Ranikhet.

This entire plantation of 190 species also includes about 30 medicinal plants belonging to alpine, sub-alpine, Eastern and Western Himalayas, Tarai, and Shiwalik ranges etc. and regular observations regarding their satisfactory growth behaviour have been made from time to time.

A few of the important medicinal species which indicated quite a satisfactory growth are Mandookparni (*Centella asiatica*), Yastimadhu (*Glycyrrhiza glabra*), Brihadela (*Ammomum subulatum*), Shathi, (*Hedychium spicatum*), Pippali (*Piper longum*), Tagar (*Valeriana wallichii*), Vasa (*Adhatoda vasica*), Rudraksha (*Elaeocarpus ganitrus*), Punarnava (*Boerhaavia diffusa*), Jeevak (*Microstylis wallichii*) and (*Calotropis gigantea*). Special measures/techniques are being worked out for evolving an ideal technique for the propagation of these plants through runners/cuttings etc. A few of these plants are also observed for their growth behaviour when subjected to different fertilizers and farm yard mannure. Special emphasis is being given to the cultivation of Yastimadhu and Rudraksha.

Based on the satisfactory growth, a few medicinal species of Ayurvedic importance have also been undertaken for large scale cultivation to meet the drug demand of the Council's different research projects, Pharmacies and OPDs etc. These include Tagar (*Valeriana wallichii*), Jeevak (*Microstylis wallichii*),

Vacha (*Acorus calamus*), *Mentha sylvestris*, Mandookparni (*Centella asiatica*), *Curculigo orchioides*, Rakoli (*Roscoea proura*) etc.

The other important plants of the garden includes Bhringaraja (*Eclipta alba*), Mahameda (*Polygonatum verticillatum*), Pippali (*Piper longum*), Pashanbhed (*Bergenia ligulata*), Ashwagandha (*Withania somnifera*), Akarkara (*Anacyclus pyrethrum*), Eranda (*Ricinus communis*), Lajjalu (*Mimosa pudica*), Nirgundi (*Vitex negundo*), Sarpagandha (*Rauvolfia serpentina*), Dhataki (*Woodfordia floribunda*), Daruharidra (*Berberis aristata*), Gunja (*Abrus precatorius*), Mahanimba (*Melia azedarach*), Kantakari (*Solanum xanthocarpum*), and Gajapippali (*Scindapsus officinalis*) and *Schizandra grandiflora* etc.

The exotic plant species successfully introduced in the garden are *Mentha arvensis*, *Calandula offlcinalis*, *Duranta plumari*, *Digitalis purpurea*, *Digitalis lanata* and *Digitalis ferruginea*.

Saffron-Experimental Cultivation

Saffron cultivation project is being carried out on about 1.5 acres of the land which is a part of the total cultivable area of 2.53 acres of the total of 7.89 acres available land. During the reporting period, experimental trials were continued. A total of about 5,17,048 corms of different sizes were being properly maintained in about 560 beds of varying sizes covering an area of 2.297 sq. meters. Regular observations were carried out on growth, development and multiplication of saffron corms from time to time. Flowering was observed from the second week of October and continued till November. During the entire flowering period a total of 2,904 flowers weighing 864 gm. (fresh) were collected yielding 15.00 gm. of saffron consisting of dry stigma and style.

Regional Research Centre, Itanagar

This Centre has recently acquired about 17 acres of the land from the State Govt. for cultivation purpose and out of this about seven acres have been put to cultivation of medicinal plants both under experimental and large scale. This project which commenced in June 1987 has gained momentum and a total of about 106 important Ayurvedic medicinal plant species are presently growing there. A few plants have been subjected to experimental trials for observing their growth behaviour and yield etc. under different agro-chemical

conditions. About 10 Ayurvedic medicinal plant species have also been taken up on large scale cultivation to meet the drug supply requirement of the Centre for its OPD as well as Council's different research projects. The entire cultivation also includes about 46 medicinal plants mentioned in Ayurvedic Formulary Part-I.

A few other important medicinal plant species under cultivation in different gardens, that are either extensively or largely used or sparingly available are as listed hereunder :

Aragvadha (*Cassia fistula*)

Arjuna (*Terminalia arjuna*)

Asoka (*Sarca asoca*)

Asthishrinkhala (*Cissus quadrangularis*)

Bala (*Sida cordifolia*)

Bharangi (*Clerodendrum serratum*)

Bhringraj (*Eclipta prostata*)

Bibhitaka (*Terminalia belerica*)

Bimbi (*Coccinia cordifolia*)

Brihadela (*Amomum subulatum*)

Chitraka (*Plumbago zeylanica*)

Danti (*Baliospermum montanum*)

Daruharidra (*Berberis aristata*)

Gokshura (*Tribulus terrestris*)

Guduchi (*Tinospora cordifolia*)

Haritaki (*Terminalia chebula*)

Kalmegh (*Andrographis paniculata*)

Kanchnara (*Bauhinia veriegata*)

Kantakari (*Solanum xanthocarpum*)

Khadira (*Acacia catechu*)

Kutja (*Holarrhena antidysehterica*)

Langali (*Gloriosa superba*)

Lodhra (*Symplocos racemosa*)

Madana (*Xeromophis spinosa*)

Manjishta (*Rubia cordifolia*)

Nimba (*Azadirachta indica*)

Nirgundi (*Vitex negundo*)

Pasanbheda (*Bergenia ligulata*)

Sarpunkha (*Tephrosia purpurea*)

Sati (*Hedychium spicatum*)

Shalmali (*Bombax ceiba*)

Sirisha (*Albizzia lebbeck*)

Syonaka (*Oroxylum indicum*)

Udumbara (*Ficus glomerata*)

Varuna (*Crataeva nurvala*)

Abstract at a glance

1.	Total number of medicinal species cultivated both on experimental/mass scale cultition.	350 approximately
2.	Total produce (in the Kg.) of the Herbal Farms, during 1987-88 consisting of different medicinal species.	1041 kg. approx.
3.	Total drug supplied (in kg.) by the Herbal Farms to different Instt/Centres of the Council for research purposes.	920 kg.

PHARMACOGNOSTIC STUDIES

The Council, through its six Pharmacognosy Research Units located at Calcutta, Delhi, Lucknow, Jammu, Pune and Trivandrum have taken up the pharmacognostical investigations on a number of drugs of Ayurvedic importance with the object to help overcome the controversy and confusion that exists regarding their proper identity, due to synonym and use of one and the same name for more than one drug and to evolve standards for single drugs so that genuine and authentic drug material can be made available for research and the pharmaceutical industry.

The different units during the reporting period have carried out pharmacognostical studies on the following 13 drugs :

1. Salmali (*Bombax ceiba* Linn Schott & Endl.)—Root and Stem bark.
2. Kash (*Scharum spontaneum* Linn.)—Root stem and leaf.
3. Ikshu (*Sacoharum officinarum* Linn.) – Stem.
4. Musali (*Chlorophytum arundinaceum.*)—Root.
5. Chitrak (*Plumbago zeylanica* Linn.)—Root.
6. Rakta chitraka (*Plumbago indica* (Linn.)—Root.
7. Katukarni (*Argemone nexicana* Linn.)—Stem and Root.
8. Lajjalu (*Mimosa pudica* Linn.)—Leaf stem and Root.
9. Bharangi (*Clerodendrum serratum* Moon.)—Leaf, stem and Root.
10. Bhunimba (*Andrographis paniculata* Nees.)—Stem.
11. Ketaki (*Pandanus tectorius* Soland ex. parkinson.)—Leaf.
12. Virataru (*Dichrostachys cinerea* W & A.)—Root.
13. Gambhari (*Gmelina arborea* Roxb.)—Fruit.

The pharmacognostic research programme includes the study of source, collection, identification morphological and histological

characters (both qualitative and quantitative), identification of diagnostic characters, test for purity, preliminary phytochemical studies, chromatographic studies, identification of chemical constituents like alkaloids, steroids, and terpenoids, phenols, tannins, saponins and flavonoids etc. and fluorescence analysis of the various plant parts. These chemo-taxonomic studies have greatly helped not only in the identification of genuine drug material but also to know of spurious and adulterated and substituted drugs.

CHEMICAL RESEARCH STUDIES

Chemical studies have an important role in the development of drug research. These studies reveal the hidden secrets of plant kingdom i.e. what are the various compounds present and which are the active ingredients responsible for their effectiveness. The Phytochemical Research Units located at Calcutta, Delhi, Hyderabad, Lucknow, Madras, Trivandrum and Varanasi have isolated active principles from herbals to carry out further studies. A brief resume of the work carried out during the year 1987-88 is reported as under :

1(a). Badari (*Ziyzyphus jujuba* Lam) **ChRUC**

Chemical investigation of the different extracts of *Z. jujuba* afforded a number of triterpenoids. Of these, structure elucidation of three compounds is nearly complete. The three compounds isolated in pure form are : Zj-I (m.p. 263-65°) (from petrol extract of stem bark); Zj-III, (from ethyl acetate extract of roots), Zj-P(i), (m.p. 283-84°) (from petrol extract of roots).

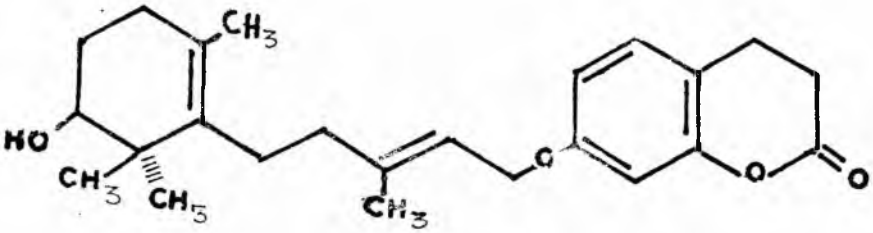
1(b). Badari (*Ziyzyphus jujuba* Lam) **ChRVU**

The stem bark of this plant was subjected for detailed chemical investigation and two 13-member cyclopeptide alkaloids viz., nummularine-B, m.p. 230-232° and amphibin-H, m.p. 203-205° were isolated and characterised by using various chemico-physical methods i.e. u v, IR,NMR , Mass, Co-TLC, Co-IR, m m.p. etc. and also by direct comparison with authentic samples. The isolation of more alkaloids as well as non-alkaloidal constituents are in progress.

2 Balhika, hingu (*Ferula assafoetida* Linn) **ChRUC**

A number of sesquiterpenoid coumarins have been isolated from the concentrated ether extract of *F. assafoetida.* The structure of one of the compounds, assafoetidin, m.p. 112°, has been elucidated as given below from UV, IR, Mass, ^{1}HNMR, ^{13}CNMR (decoupl-

ed and DEPT) studies as well as from 2D-NMR experiments-COSY, COSY-LR.



The structure elucidation of the two compounds designated as F.F. 1 and F.F. 9 are being carried out and identification of other compounds is in progress.

3. Dhurva (*Cynodon dactylon* Linn, Pers **RRIT**

The aerial parts of *Cynodon dactylon* were extracted with petroleum ether, acetone and ethanol successively. The former yielded chlorophyll and waxy substances while the later afforded luteolin, orientin and iso-orientin.

4. Granthiparani (*Leonotis nepetaefolia* RBr.) **CSMDRIAM**

The air dried and powdered roots of *L. nepetaefolia* were extracted with chloroform which afforded campesterol, m.p. 152-3°, 4, 6, 7-trihydroxy-5-methylchromene--2-one and an unidentified compound, m.p. 80-82°.

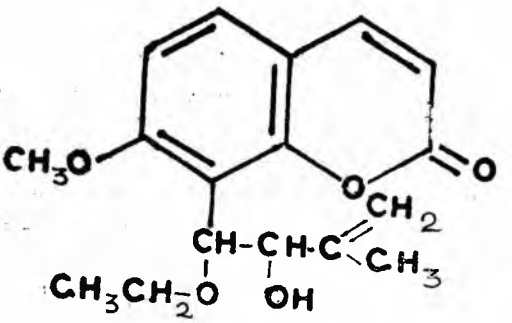
5. Haritaki (*Terminalia chebula* Retz.) **ChRUC**

From the methanolic extract of defatted *T. chebula*, two phenolic compounds designated as TC-1, m.p. 192-4° and TC-2, m.p. 234-35° have been isolated. From detailed analyses of the spectral data (UV, IR, ^{1}HNMR, ^{13}CNMR-DEPT & Mass) plausible structures for both the compounds have been assigned which are being verified by salient chemical experimentations.

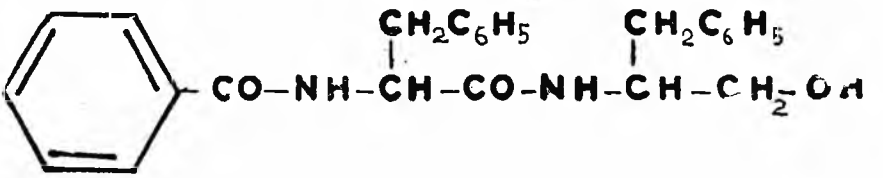
6. Kamini, Marchala (*Murraya exotica* Linn) **ChRUC**

(a) A new coumarin, characterised as its acetate m.p. 138-40° has been isolated from the ethanolic extract of the leaves of the plant. Based on the structure of the acetate, the structure of the new coumarin, murraxocin has been established as given below by

using various spectral studies (UV, IR, NMR & Mass).

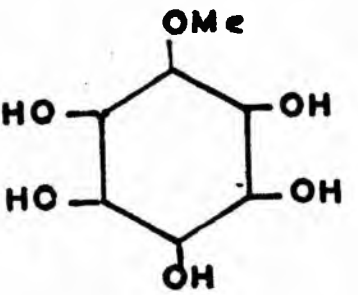


(b) From *M. exotica*, a biologically important dipeptide amide, aurantiamide, m.p. 182-84° (as given below) has been obtained which constitutes the first report of its isolation from *Rutaceae* family.



7. **Kantaki karanja** (*Caesalpinia crista* Linn) **ChRUC**

The structure of the polyhydroxy compound obtained from the methanolic extract of the fruit shells of *C. crista* has been formulated as given below from detailed spectral analyses (IR, ^{1}HNMR, ^{13}CNMR & Mass) of the compound and its acetate.



8. Karnasphutica, Pissumar (*Boenninghaussania albiflora* Reich) **ChRUC**

Petroleum ether extract of this plant on concentration deposited a solid which on column chromatography over silica gel afforded five compounds viz., BG-I (m.p. 48-49°), BG-II (m.p. 64-65°), BG-III (m.p. 75-77°) BG-IV (m.p. 128-30°) and BG-V (m.p 255°). Characterisation of all these compounds is being carried out with the aid of modern spectroscopic methodologies and chemical reactions.

9. Kataka (*Strychnos potatorum* Linn.) **ChRUV**

Chemical investigation of the seeds of ***Strychnos potatorum*** resulted in the isolation of a number of chemical constituents, whose structure elucidation are in progress. The individual pure principles as well as the alcoholic extract of the above plants were subjected to Pharmacological investigation.

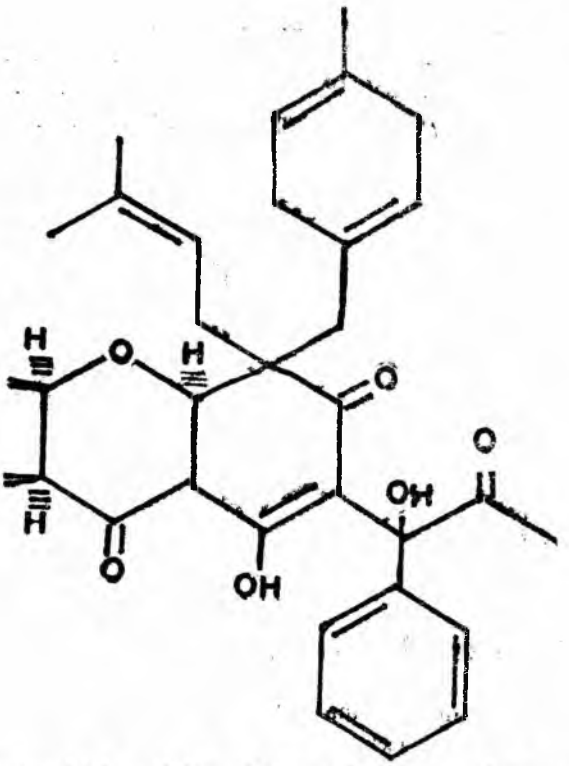
10. Lata Kasturi (*Abelmoschus moschatus* Medic syn. *Hibiscus abelmoschus* Medic) **CRID**

Benzene and ethanol extract of the seeds were prepared successively. Ethanol (total) extract was also prepared and submitted for pharmacological screening. Literature survey of this plant was also completed. Further work of the isolation of compound from these extracts is in progress.

11. Nagakesara (*Mesua ferrea* Linn) **ChRUH**

Stamens of the *Mesua ferrea* were extracted with petroleum ether which on column chromatography yielded B-amyrin, B-sitosterol and an amorphous powder designated as mesuaferol (C_{35} H_{46} O_6, m.p. 75°). Based on IR, ^{1}HNMR, ^{13}CNMR, and high resolution

mass spectral studies, following structure has been assigned to mesuaferol.



Antimicrobial activity of mesuaferol was also evaluated by filter paper disc-diffusion plate method.

12. Patala (*Stereospermum suaveolens* DC.) **ChRUH**

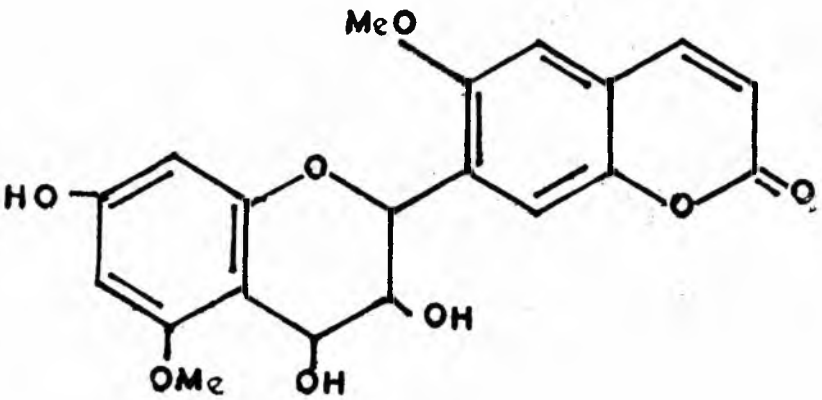
Powdered roots were extracted with petroleum ether, chloroform and methanol successively. The former two extracts were sent for pharmacological testing. The former extract indicated the presence of terpenoids whereas the chloroform extract gave positive test for flavonoids. The later extract gave positive test for flavonoids, glycosides and terpenoids. The powdered bark is being extracted with petroleum ether, chloroform and methanol successively. Terpenoids and glycosides were detected in all the above three extracts.

13. Sallaki (*Boswellia serrata* Roxb) **ChRUH**

Gum oleoresin yielded an essential oil which showed the presence of α-pinene, camphene, α-phellandrene, α-terpinene, bornyl acetate and α-terpenoel.

14. Sariva (*Hemidesmus indicus* R.Br.) **ChRUC**

Concentrated benzene extract of the plant on chromatographic resolution over silica gel afforded a new coumarin derivative. Based on the spectral data (UV, IR, ^1H NMR & Mass), a plausible structure (as given below) has been suggested for the coumarin.



15. Siddhaka (*Lagerstroemia parviflora* Roxb) **ChRUC**

Repeated column chromatography of the concentrated n-hexane extract of *L. parviflora* (whole plant) yielded lageflorin, m.p. 346-48° which has been shown to be a new triterpenoid diketone of the hopane series.

16. Soma (*Sarcostemma brevistigma* W. & A.) **RRIT**

The stem of the plant was extracted with petroleum ether, benzene, acetone and ethanol successively. Three neutral compounds were isolated from the former extract. Further work is in progress.

17. Taimuli, Musali (*Curculigo orchioides* Gaertn.) **CSMDRIAM**

The hexane extract of the roots on column chromatography gave an ester. Hydrolysis of the ester gave an acid and an alcohol. Both the acid and alcohol were found to be in the plant. The structure elucidation of these compounds is in progress. Octacosanol was also isolated from the hexane extract.

18. Tarkari (*Clerodendrum phlomidis* Linn.) **ChRUV**

The dried and powdered flowers were extracted with petroleum ether, chloroform, ethyl acetate and methanol successively. Ethyl acetate extract on chromatography furnished three compounds. Compound A, m.p. 208-209° was identified as pectolinarigenin while compound B, m.p. 287-89° as hispidulin and compound C, m.p. 340-343° as apigenin by using various spectral data i.e. UV, IR, NMR and Mass alongwith Co-TLC, m.m.p. and Co-IR and also by direct comparison with authentic samples.

19. Varsabhu (*Trianthema portulacastrum* Linn.) **ChRUC**

Chemical investigation of *T. portulacastrum* yielded a sterol, m.p. 196° and a triterpene acetate, m,p. 155-6°. Further studies for structure elucidation are in progress.

20. Vasa (*Adhatoda vasica* Nees) **ChRUH**

Vasicine and kaempferol have been isolated from the methanol extract of flowers. Vasicine was also isolated from the methanol extract of leaves. It's structure was characterised by the various spectral studies viz, IR, UV, NMR and Mass. Conversion of vasicine to vasicinone was also studied. Four pure compounds viz. Compound-1, m.p. 98° (Mass 188), compound-2, m.p. 218° (Mass 256), compound-3, m.p. 94° (Mass 188) and compound-4, m.p. 222° (Mass 141) were isolated from the methanolic extract of stem. This extract gave positive colour reaction for phenolics, terpenoids, alkaloids, glycosides and coumarins. Three new compounds were isolated from the chloroform extract of the stem. Further, structural elucidation is in progress.

21. Virdhadaruka (*Ipomoea petaloides* Choisy) **ChRUH**

Whole plant was extracted with petroleum ether, chloroform and methanol successively. All these extracts were sent for pharmacological screening. Petrol and chloroform extracts indicated the presence of terpenoids whereas methanol extract showed the presence of phenolics, flavanoids, glycosides and terpenoids.

22. **Vrksamla** (*Garcinia indica* Chois) **ChRUH**

A chloroform extract of stem bark of *G. indica* gave positive ferric chloride and L.B. tests. It was put on silica gel column and eluted with solvents of increasing polarity. Petroleum ether : ethylacetate (9 : 1) eluents yielded a light yellow compound. Further investigation of this compound is in progress.

23. *Miscellaneous work*

(i) **Arka** (*Calotropis gigantea* Linn. R. Br.) **CRID**

Ethanol extract of the powdered leaves was prepared and submitted for pharmacological screening.

(ii) **Alarka** (*Solanum trilobatum* Linn.) **CSMDRIAM**

420 gm. of S.T.G. was isolated from this plant.

(iii) **Chitraka** (*Plumbago rosea* Linn.) **CSMDRIAM**

From the powdered roots (15 kg.) of this plant, pure plumbagin (9 gm.) was isolated.

(iv) **Guduchi** (*Tinospora cordifolia* Willd Miers.) **ChREL**

Alcoholic and aqueous extracts of *T. cordifolia* as well Satgiloe from aqueous extract were prepared. All the above extracts were sent for different biological activities to various departments i.e. Pharmacology, Parasitology, Biochemistry, Toxicology and Mycology.

(v) **Khadira** (*Acacia catechu* Willd) **ChREL**

Literature survey of the plant was completed.

(vi) **Rajbala** (*Sida veronicaefolia* Lam) **ChREL**

Literature survey of this drug was completed.

(vii) **Saptaparna** (*Alstonia scholaris* R. Br.) **CSMDRIAM**

2.5 g. of echitamine chloride was isolated from *A. scholaris*

(viii) **Sati** (*Hedychium spicatum* Buch-Ham) **ChRUH**

Petroleum ether and chloroform extract of the whole plant were sent for pharmacological screening.

(ix) **Tryamana** (*Gentiana kurroo* Royle) **ChREL**

Literature survey of this plant was completed.

(x) **Tvakpatra** (*Cinnamomum tamala* Nees and Ebern) **ChREL**

Literature survey of this drug was also completed.

PHARMACOLOGICAL RESEARCH STUDIES

Drug Research is a continuous process and studies on experimental animals constitute an important component of it. Whether it is the development of a new drug or confirmation of old claims, Pharmacological and Toxicological studies play a very vital role. Such studies are persued by the Council for the overall development of Ayurvedic drug research. These studies are carried out by various Institutes and Units of the Council located at Bombay, Calcutta, Lucknow, Patiala, Jodhpur, New Delhi, Trivandrum, Varanasi, Cheruthuruthy and Jhansi. During the reporting period 28 single drugs, six coded drugs and three compound formulations were studied. A brief review of these studies is reported here under :

1. Arogyavardhini **TRUJh**

Aqueous suspension in distilled water of the powdered tablet referred to as the drug has been used for the study.

No mortality or any abnormal change in behaviour in albino rats of either sex weighing between 100-150 gm. could be noticed during the period of observation. The drug produced dose dependent decrease in rate, tone and contractility of frog's heart.

The drug was screened for its effects on the rectus abdominis muscles of frog and it was found that the drug is devoid of any action on this tissue in graded dose of 10-500 mg. in bath solution.

A significant stimulation of ACH induced contractions of the Hileum of rabbit was observed when the drug in graded doses 10-500 mg. was given.

The drug in the doses of 100,300 and 1000 mg. did not have anti-convulsant activity against electric shock seizures in albino rats of 100-150 gm. body weight and of both sexes.

There was no significant effect of the drug in doses of 500 and

1000 mg. on blood sugar level in rabbits af either sex and weighing between 1-2 kg.

The drug in doses of 500 and 1000 mg./kg. given orally to rabbi's was devoid of any influence on bleeding time (BT), while a significant increase in clotting time (CT) was observed after two hours of drug treatment.

2. Amal Vetasa (*Garcinia pedunculata*) **IIKP**

LD_{50} of aqueous extract of the drug in mice and rats was found to be 5 gm./kg. and 7.5 gm./kg. respectively. The drug reduced the sleeping time and produced diuretic effect in rats but was devoid of hypothermic activity.

3. Amrataka (*Spondias pinnata*) **IIPC**

Petroleum ether and chloroform extracts of the drug in doses of 100, 800 and 1000 mg./kg. produced significant potentiation of pentobarbitone induced hypnosis while ethanol extract in doses of 300 and 1000 mg./kg. exhibited significant potentiation in albino mice but cold aqueous infusion was not found to produce any significant effect in all these doses.

Petroleum ether, chloroform and ethanol extracts as well as cold aqueous infusion of the drug failed to exhibit any analgesic activity.

Ethanol extract and cold aqueous infusion of the drug in doses of 100,300,1000 mg./kg. exhibited significant anti-inflammatory activity while no such activity was observed with petroleum ether and chloroform extracts.

Petroleum ether (60-80°), chloroform and ethanol extracts and cold aqueous infusion of the bark of the drug were tested for anti-bacterial activity against Pseudomonas, Acruginose, E. coli, and Staphylococcus aurens and for anti fungal activity against Aspergillus fumigatus, Trichophyton rubrum and Trichophyton violaccum in doses of 1 and 10 mg./ml. of culture media. No antibacterial and antifungal activity was exhibited by any of the extracts.

4. Dhanvayasa (*Fagonia cretica*) **PhRUJ**

Aqueous extract of the drug produced a decrease in tone and amplitude of isolated rabbit's ileum in doses of 10, 20, 30, 40 and

50 μg. However with higher doses such as 1, 2 and 3 mg the decrease in tone was less while with low doses amplitude was found to be slightly increased. Further, the extract did not, in these doses, modify the response of ACH on isolated ileum.

On perfused frog's heart, the extract in doses of 100, 150 and 200 μg produced an increase in the rate and force of contraction, while on perfused rabbit's heart, the doses of 10, 20, 30 and 50 μg caused increase in rate and force of contraction. However the effect was not dose dependent and the coronary flow per minute remained unaffected.

Different doses of the extract (10, 20 and 50 μg and 1, 2 and 5 mg.) were not found to alter or modify the responses of ACH on isolated frog's rectus abdominis muscles preparation.

Doses of 50, 100, 300 and 1000 mg./kg./p.o. of the aqueous extract in mice showed slight increase in altertness, brooming, reflex and exploratory movements and also gnawing but no fighting.

There was no motor-deficit effect of the aqueous extract of the drug in albino rats in doses of 50, 100, 300 and 1000 mg./kg./p.o.

Aqueous extract of the drug in doses of 100, 300 and 1000 mg./kg./p.o produced slight reduction in pentobarbitone induced sleeping time in mice though 50 mg./kg./p.o. did not produce any change.

The aqueous extract of the drug (50, 100, 300 and 1000 mg / kg /p.o.) produced marked reduction in reaction time in mice and the animals became highly sensitive to noxtious stimulus after drug ingestion.

5. **Jatiphala** (*Myristica fragrans*)—seeds **PhRUT**

Petroleum ether, chloroform and aqueous extracts (decoction) were used for acute toxicity studies. Decoction upto 50 gm./kg. and extracts upto 2 gm./kg. adminstered to the albino mice (25-30 gm.) orally did not exhibit any toxicity.

Aqueous extract (decoction) of the drug in doses of 100 mg. to 10 gm./kg. body weight was administered orally to male albino mice (20-30 gm.). Mild CNS sedative effect was noticed in higher doses.

The aqueous extract (decoction) of the drug was used in dose levels from 10 mg. to 100 mg. From 20 mg. onwards, there was a dose dependent myocardial depression action with a transcient cardiac arrest on frog's heart. Adrenaline (10/μ) was observed to reduce this depression. But the drug was found not to potentiate or suppress the positive inotropic effect of adrenaline. Further study to detect its ACH induced effect on myocardium is in progress.

The decoction in 5 mg./ml. bath showed a partial blockade of ACH (1μ/ml.) induced contractions on frog rectus abdominis muscles.

6. **Jyotishmati** (*Celastrus, paniculatus*)—Extract CP/BM/MeOH/1) **CRIB**

The extract CP/BM/MeOH/1 did not show any toxic syndrome or mortality upto a dose of 500 mg./kg. given orally to mice. The extract in a dose of 500 mg /kg. given orally did not show any anti-inflammatory effect in the male rats weighing between 86-120 gm. The extract in a dose of 500 mg./kg. given orally did not show analgesic effect in male mice weighing between 18 to 20 gm.

7. **Krishna sariva** (*Cryptolepis buchanani*) **PhRUT**

The acute toxicity study was carried out with the aqueous extract (decoction) of the root of the plant given orally in varying doses to mice and the work is continuing.

8. **Musta** (*Cyperus rotundus*) **PhRUL**

The results on 50 cases of rheumatoid arthritis, who were under regular treatment for two years were analysed. Clinically the effect ranged from fair-good to excellent.

9. **Parpat** (*Fumaria parviflora*) **PhRUL**

LD_{50} of the residue obtained from 70% alcoholic extract of the drug in mice was found to be 3.2 mg./kg./p.o.

10. Sati (*Hedychium spicatum*)-Extracts **CRIB**

(i) HS/BM/Petrol/1
(ii) HS/BM/CHC/3

None of the extracts upto a dose of 500 mg./kg. given orally showed any toxic effect in male mice.

The extracts in a dose of 500 mg./kg. given orally did not show any anti-inflammatory effect in the male rats weighing between 80 to 120 gm.

The extracts in a dose of 500 mg./kg. given orally did not show analgesic effect in male mice weighing between 18 to 20 gm.

11. Vasa (*Adhatoda vasica*)—Extract BM/AVS/Meoh/1 **CRIB**

The extract given orally to mice was found to be non toxic upto a dose of 500 mg./kg. Using phenylbutazone as standard (dose 40 mg./kg.), the extract in a dose of 500 mg./kg. given orally did not show any anti-inflammatory effect in the male rats weighing between 80 to 120 gm. The extract in a dose of 500 mg./kg. given orally did not show analgesic effect in male mice weighing between 18 to 20 gm.

12. Vata (*Ficus bengalensis*) **IIKP**

The aqueous extracts of the bark and of proproot were found to be devoid of any hypothermic activity in rats. Alcoholic extract of the bark potentiated the sleeping time in rats at a dose of 500 mg./kg. Alcoholic and aqueous extracts exhibited anti-diuretic effects in rats.

13. Panax *sikkemansis* **PhRUL**

The hypotensive activity of the plant root was studied in dogs and it was observed that the drug had significant hypotensive and bradicardiac effects.

14. Solamerine **CRIB**

The LD_{50} of Solamerine given orally to mice of either sex weighing between 18-22 gm. was found to be 3.0 gm./kg. with feducial limits between 4.8 gm./kg. and 1.90 gm./kg. at 95%

confidence level. It was observed that the drug is non-toxic upto a dose level of 2 gm./kg. when given orally to rats.

15(a). Effect of plant drugs on brain succinate dehydrogenase enzyme (SDH) PhRUL

Effects of stress on the enzyme, SDH of plant drugs (i) Tulsi (*Ocimum sanctum*), (ii) Kokatendu (*Diospyros peregrina*), (iii) Ashwagandha (*Withania somnifera*), (iv) Katuki (*Picrorhiza kurroae*) and (v) Ginseng (*Panax ginseng*) in normal and stressed animals were studied and it was observed that the enzyme, SDH is involved in stress adaption phenomenon and there is a significant increase in the levels of the enzyme during stress.

(b) Study of the effect of plant drugs on different receptors in rat brain

Dopamine, acetylcholine and benzodiazepine receptors in stresses-both acute and chronic were studied and it was observed that both acute and chronic stresses, produce a significant effect and increase the receptor population of these receptors in rat brain. This receptor population increase in all the three neurotransmitters was significantly (P) 0.01) prevented by *Withania somnifera* and *Panax ginseng*, the anti-stress drugs.

16. Sub-acute toxicity of Roki N_1 and Roki N_2 in rats by oral routes CRIB

The different doses of the drugs were administered daily to different groups of rats After completion of the study, animals were sacrificed, blood was collected and haemochromo-cymetric values and biochemic levels of different constituents of the blood were determined. The organs-heart, liver, spleen, kidney and adrenals were removed, weighed and preserved for histology. The details of the result of the study are awaited.

17. Coded Extracts CRIB

(i) IP/CVR/P (ii) IP/CVR/C (iii) IP/CVR/M
(iv) SSR/CVR/P (v) SSR/CVR/C

None of the extracts exhibited any toxic effect upto a dose of 500 mg./kg. given orally to mice. Using phenylbutazone as standard (dose 40 mg./kg.), the extracts IP/CVR/P, IP/CVR/C and IP/CVR/M in a dose of 500 mg./kg. given orally showed anti-inflammatory activity in the male rats weighing between 80 to 120 gm. IP/CVR/P was 50% effective in comparison with the standard drug.

18. Atlaria (*Polygonum glabrum*) **PhRUV**

The anti-inflammatory activity of the drug was studied on the carrageenin induced oedema, formaldehyde induced arthritis, granuloma pouch and adjuvant induced arthritis in albino rats. The stem of the drug was found to be very effective in these models. The leaves, fruits and roots also exhibited the anti-inflammatory activity in these models but to lesser extant.

19. Kantalu (*Echinops echinatus*) **PhRUV**

The effect of the drug was studied on carrageenin in oedema, formaldehyde arthritis and adjuvant arthritis in albino rats and it was found to posses effective anti-inflammatory activity in these models.

20. Katuki (*Picrorhiza kurroa*) **PhRUV**

Anti-inflammatory and anti-allergic effects of the water soluble fraction of alcoholic extract of the rhizome (PK) were confirmed earlier in rats indicating that these effects were brought about by inhibition of mediator release. Further studies with the fraction (PK) have been undertaken to explore the mechanism of inhibition of release of anaphylacetic mediator from mast cells.

Three day oral pre-treatment of normal rats failed to interfere with passive sensitization of isolated mesenteric mast cells by IgE rich donor sera from rats while there was inhibition of antigenic activation of their mesenteric mast cells after passive sensitization and subsequent challenge with antigen (horse serum) in calcium free medium suggesting reduced activation of membrane serine esterases/ phospholipid transmethylases in such cells by antigenic challenge.

Three day oral treatment of rats with the fraction (PK) was associated with decreased proteolytic activity of gastric juice secreted by such rats. It did not inhibit directly proteolytic activity

on admixture of gastric juice *in vitro* suggesting an indirect mode of inhibition of serine-esterase as a mechanism for anti-anaphylacetic mast cells stabilization. It was confirmed by failure to detect additional mast cells stabilization in the fraction (PK) treated rat mast cells when the latter serine-esterases are heavily inhibited by DFP treatment.

Different pH optimae for activity of the two documented phospholipid transmethylases on antigen challenge was studied to elaborate the fraction (PK) effect on such enzyme and no significant changes in magnitudes mast cell stability on challege at pH 6, 5, 7, 4 and 10 were observed.

Inhibition of mast cells anaphylacetic degranulation by low (10^{-6} M) concentration of potent calcium channel blocker, pimozide was potentiated in the fraction (PK) treated animals, while no such potentiation could be detected at higher (10^{-4} M) concentration.

Thus similar mast cell stabilisation mechanisms for piniozide and the fraction (PK) treatment, i.e. inhibition of anaphylacetic calcium influx, were inferred.

Thus the positive outcome are an inhibition of membrane influx of Ca^{2+} and inhibition of proteases as possible mechanisms of anti-allergic and anti-asthamatic use of the drug, *P. kurroa*. These two process may in fact be related to each other as protease activation is known to depend on calcium binding.

21. Arka (*Calotropis procera*) **CRID**

Both the aqueous and alcoholic extracts of the leaves of *C. procera* were found devoid of any toxicity upto a dose of 8000 mg /kg. given orally to rats and mice.

22. AYUSH 56 **PhRUC**

In continuation of earlir findings, some more investigations have been carried out.

The drug, AYUSH 56 is unable to afford protection against strychinine induced convulsion in mice. Considering ineffectiveness against leptazol and strychnine induced chemoshock but protection roshock, it is presumed that AYUSH-56 may be

inactive on petitmal type of epilepsy, but it may be used in major epilepsies.

AYUSH-56 in 0.1, 0 25, 0.5 and 1 mg./ml. of bath concentration failed to effect isolated muscle (guineapig ileum). The drug also did not modify ACH induced spasm in the same bath.

AYUSH-56 in a dose of 0.25 mg./ml. of bath concentration had no effect, with high dose of 1 mg./ml. it produced inhibition of ACH. But the higher dose than this, completely blocked the spasmogenic effect of ACH, which returned to normal with much higher doses followed by wash.

The drug was studied for analgesic activity in rats and it was observed that the drug in a dose of 125 mg./kg. p.o. exhibited delayed response.

The drug in a dose of 250 mg./kg. p.o. administered to rats did not produce anti-inflammatory effect against carrageenin induced paw oedema.

Aqueous filtrate of the drug (100 mg./ml. of AYUSH-56) in a dose of 2 ml. did not produce local anaesthetic effect as compared with cocane.

The drug on administration orally to *T. cruzi* infected albino mice in doses of 500 and 1000 mg./kg. failed to show trypanocidal property.

23. Ardraka (*Zingiber officinale*) **PhRUC**

Petroleum ether extract of *Z. officinale* on administration to groupsof albino mice in doses of 125 and 250 mg./kg. exhibited definite appetising property, considering amount of food intake and gain in body weight in comparison to control.

Petroleum ether extract of the drug exhibited musclotropic and anti-spasmodic against $BaCl_2$ on guineapig ileum It also inhibited histamine induced contractions.

The extract of the drug in a dose of 100 mg./kg. produced biphasic response followed by sustained fall in blood pressure persisting about an hour. Pre-treatment of the extract protected histamine induced vaso depression.

Petroleum other extract of the drug screened orally on *P. berghei* infected mice showed anti-malarial property.

24. Jatamansi (*Nardostachys jatamansi*) **PhRUC**

Alcoholic extract of *N. jatamansi* in doses of 125 and 250 mg./kg. p.o. did not potentiate pentobarbital hypnosis in albino mice.

Alcoholic extract of the drug in a dose of 250 mg./kg. p.c possessed significant analgesic effects in rats.

The extract of the drug in a dose of 250 mg/p.o. failed to exhibit anti-inflammatory property against carrageenin induced rat hind paw oedema. Further studies are in progress.

25. Arsaghna (*Amorphophallus campanulatus*) **PhRUC**

Petroleum ether extract of *A. campanulatus*, administered to group of mice in does of 100 and 200 mg/kg. in the form of drug diet, exhibited appetising property (considering daily food intake and gain in body weight), but the extract was less potent than *Z. officinale*.

26. Haritaki (*Terminalia chebula*)

In continuation to previous work, the methanolic extract of the drug did not produce any effect on the muscul tone of the guineapig ileum. It also did not modify ACH and $BaCl_2$ induced spasm on the tissue.

27. Badari (*Zizypus jujuba*) **PhRUC**

Ethyl acetate extract of *Z. jujuba* exhibited marked relaxation of isolated rat colon and also produced marked inhibitory effect against ACH induced contractions. The tissue, however, returned to normal after a few wash followed by ACH.

28. Nirgundi (*Vitex negundo*) **PhRUC**

Petroleum ether extracts of seeds and leaves of the drug on administration to group of rats in a dose of 100 mg /kg. p.o. showed sinificant anti-inflammatory property against carrageenin induced rat hind paw oedema. In comparison to seed, leaf extract was found more potent and also the leaf extract showed significant anti-inflammatory effect against cotton-pellet granuloma.

PHARMACEUTICAL RESEARCH/ STANDARDISATION STUDIES

The Council considering the necessity to have standards for Pharmaceutical processes and preparations, have taken up studies connected with evolving of analytical standards. The study assumes importance as the analytical data is based on the preparations made by the Research Project themselves. This approach vouchsafes for genuineness and authenticity of the ingredients of the preparations as well as manufacturing process. It is needless to say that this occupies a pivotal place in the drug research programme. Drug Standardisation is not a new idea and Ayurvedic works have laid down principles in this regard.

Having regard to this, the Council has undertaken standardisation research studies on single drugs, process of manufacture of formulations and finished preparations/formulations such as Rasa, Taila, etc. in addition to ancillary studies like shelf-life, and role of preservatives etc. that have relevance to the Ayurvedic pharmaceutical sciences. Standardisation studies on single drugs, methods of manufacture and formulations are being carried at Regional Research Institute, Trivandrum; Captain Srinivasa Murthy Drug Research Institute for Ayurveda, Madras; Amalgamated Unit, Tarikhet and Drug Standardisation Research Project, Gujarat Ayurved University, Jamnagar. Standardisation studies on formulations and single drugs are carried out at Regional Research Centre, Bangalore, while rapid analytical values are worked out by Captain Srinivasa Murthy Drug Research Institute for Ayurveda, Madras; Drug Standardisation Research Project, Jamnagar and Drug Standardisation Research Project, Varanasi.

To undertake this new type of approach of laying down analytical values and to isolate characteristic isolates from the authentic preparation and also from the same preparatiou using different proportionate ingredients, so as to identify the authentic preparation, a meeting of the experts and officials engaged in the field of Standardisation Studies have been convened and uniform

methodology has been worked out for implementation in the Standardisation Research Projects of the Council. This approach, in time to come may prove to be a foolproof method to identify the genuine preparation.

One of the Standardisation Research Projects, Captain Srinivasa Murthy Drug Research Institute for Ayurveda, Madras has celebrated its Silver Jubilee Celebrations during the Month of November, 87. During this occassion a Seminar on Drug Standardisation vis-a-vis Phytochemical Investigations of Medicinal Plants used in Ayurveda and Siddha System of Medicine was also organised, which was attended by eminent Scholars, Researchers engaged in the Standardisation and Phytochemical Studies. The Seminar while appreciating the new approach in the Standardisation Studies, also stressed to hasten up the studies so that ailing humanity at large be benefited by genuine, authentic and therapeutically potent formulations.

The following provide briefly the particulars of the Standardisation research studies on single drugs, processes of manufacture, and finished products taken up during the reporting period for laying down analytical values of the formulations included in the Ayurvedic Formulary Part-I and draft Ayurvedic Formulary Part-II, :

Single Drugs

The following single drugs have been subjected to physico-chemical studies :

Kankola (*Piper cubeba*)	CSMDRIAM
Pippali (*Piper longum*)	—do—
Amalaki (*Emblica officinalis*)	CSMDRIAM, RRIT
Haritaki (*Terminalia chebula*)	CSMDRIAM
Musali (*Curculigo orchiodis*)	CSMDRIAM, PRIT
Japa (bheda) (*Hibiscus sabdarifa*)	CSMDRIAM
Amra (*Mangifera indica*)	—do—
Bhurja (*Betula utilis*)	—do—
— *Plectranthus urticifolius*	—do—
Agnimantha (bheda) (*Clerodendrum nerifolium*)	—do—
— *Leonites nepetifolia*	—do—
— *Hyptis suaveolens*	—do—

Khadira (*Areca catechu*)	CSMDRIAM, RRIT
Vandhyavari (*Vicoa indica*)	CSMDRIAM
Saptaparna (*Alstonia scholaris*)	—do—
Chitraka (*Plumbago rosea*)	—do—
Shanka	DSRPV
Mukta	—do—
Varatika	—do—
Mriga shringa	—do—
Trayamana (*Gentiana kurroa*)	RRCB
Utpala (*Nelumbo nucifera*)	—do—
Draksha (*Vitis venifera*)	RRCB, RRIT
Dadima (*Punica granatum*)	RRCB
Khadira sara (*Acacia catechu*)	—do—
Bhunimba (*Andrographis paniculata*)	RRIT
Virataru (*Dichrostachys cinera*)	—do—
Ketaki (*Pandanus tectorius*)	—do—
Gambhari (*Gmelina arborea*)	—do—
Talisa patra (*Abies webbiana*)	—do—
Vasn (*Adhatoda zeylanica*)	RRIT, AUT
Avartaki (*Cassia occidentalis*)	RRIT
— *Chaselia curviflora*	—do—
Narikela (*Cocus nucifera*)	—do—
Patha (*Cyclea peltata*)	—do—
Dhatura (bheda) (*Dhatura stramonium*)	—do—
Kapittha (*Feronia limonea*)	—do—
Vata (*Ficus bengalensis*)	—do—
Vata bheda (*Ficus gibbosa*)	—do—
Ashvatha (*Ficus religiosa*)	—do—
Plaksha (*Ficus racemosa*)	—do—
Gambhari (bheda) (*Gmeline asatica*)	—do—
Parasika (yavani) (*Hyoscyamus niger*)	—do—

Nilika (*Indigofera tinctoria*)	RRIT
Syonaka (*Oroxylum indicum*)	—do—
Manjista (*Rubia cordifolia*)	—do—
Bala (bheda) (*Sida retusa*)	—do—
Arjuna (*Terminalia arjuna*)	—do—
Amrita (*Tinospora cordifolia*)	—do—
Yavani (*Trachyspermum ammi*)	—do—
Ushira (*Vetiveria zizanoides*)	—do—
Dhataki (*Woodfordia fruticosa*)	—do—
Dhatura (*Dhatura metal*)	DSRPJ, AUT
Kataka (*Strychnos potatorum*)	DSRPJ
Chavya (*Piper chaba*)	—do—
Udumbara (*Ficus glomerata*)	—do—
Arka (*Calotropis procera*)	—do—
Asana (*Pterocarpus marsupium*)	—do—
Upakunchika (*Nigelia sativa*)	—do—
Akarakrabha (*Anacyclus pyrethrum*)	—do—
Karanja (*Pongamia pinnata*)	—do—
Punarnava (Shweta) (*Boerhaavia verticilata*)	—do—
Karavira (*Nerium indicum*)	DSRPJ, AUT
Musakarni (*Ipomea reniformis*)	DSRPJ
Kalihari (*Gloriosa superba*)	AUT
Hamsapadika (*Adiantum lunulatum*)	—do—
Ikshumula (*Sacchrum officinarum*)	—do—
Surana (*Amorphophalus campanulatus*)	—do—
Lavanga (*Syzygium aromaticum*)	—do—
Ardraka (*Zingiber officinalis*)	—do—
Vatsanabha (*Aconitum chasmanthum*) (Crude and shodhita)	—do—
Kanchanara tvak (*Bauhinia variegata*)	—do—
Laja (*Paddy pop*)	—do—

Yavakshara	AUT
Svarjika kshara	—do—
Guggulu (*Commiphora mukul*) (Shodhita and crude)	—do—

Analytical Standards

Analytical values were laid down for the following formulations prepared as per the Formulary :

Nripati Vallabha rasa	CSMDRIAM
Mritsanjivini sura	CSMDRIAM DSRPJ, DSRPV
Dantyadyarista	DSRPV
Jaharmohara pisti	DSRPJ

Process of Manufacturing

The following methods of manufacture were studied during the reporting year :

Asavarista	CSMDRIAM
Taila	—do—
Rasa	DSRPJ, AUT
Churna	AUT
Guggulu	—do—

Detailed Standardisation Studies

Mritsanjivini sura	CSMDRIAM DSRPV, DSRPJ
Pippalysava	CSMDRIAM
Lohasava	—do—
Dasamularista	—do—
Mridvikarista	CSMDRIAM, RRIT
Vasakasava	CSMDRIAM
Chandanasava	—do—
Mahalakshadi taila	—do—
Hingvadi taila	—do—
Ashvagandhadi lehya	RRCB
Ashokarista	—do—
Rajanyadi churna	—do—

Arkavati	RRIT
Boladi vati	—do—
Parthadyarista	—do—
Musali churna	—do—
Dasana samskara churna	—do—
Kathphaladi churna	—do—
Drakshadi vati	—do—
Pinda taila—A & B	—do—
Mahashankha vati	—do—
Dantyadyarista	DSRPV
Tribhuvana kirti rasa	AUT
Samudradya churna	—do—
Bala jirakadi churna	—do—
Gokshuradi guggulu	—do—
Lavangadi vati	—do—
Kravyada rasa	—do—
Yakrit plihari loha	—do—
Jvrankusha rasa	—do—

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Miscellaneous Studies

The following miscellaneous research studies were also carried out by the Standardisation Units during the reporting year :

(a) Screening studies for anti-fertility potential of Vandhyavari (*Vicoa-indica*) at animal levels (CSMDRIAM).

(b) Micro-biological studies on *Jatropa glandulifera*, *Nyctanthes arborstritis*, Pipplyasava and Hinguadi taila (CSMDRIAM).

(c) Isolated anti-cancerous component Solamarine from *Solanum trilobatum* for further studies (CSMDRIAM).

(d) The studies on shelf-life and role of preservatives on some of the formulations were conducted (All the Standardisation Units).

Musk Deer Breeding Programme

The Council has been maintaining a Musk Deer Breeding Farm at Meharuri. During the reporting period seven fawns were born of which three died.

LITERARY RESEARCH PROGRAMME

The literary and medico-historical research programme is being carried out at Indian Institute of History of Medicine, Hyderabad, Documentation and Publication Division, New Delhi, Literary Research Unit, Thanjavur and Central Research Institute (Ayurveda), Bhubaneshwar. The programme broadly covers medico-historical studies, collection and compilation of references relating to drugs and diseases from classical treatises, lexicographic work and contemporary literature and publications of Ayurveda and allied medical sciences. The details of the work carried out during the reporting period is reported h ereunder :

Indian Institute of History of Medicine, Hyderabad

The Indian Institute of History of Medicine is devoted to research and publications relating to medical historiography, particular to India. The stress is laid on the collection of source material pertaining to the History of Medicine and particularly to Indian Systems of Medicine. This includes collection and study of manuscripts, old and rare books, editing and translation of valuable treatises, collection of information from non-medical sources, sources related to archaeology and epigraphy, besides gathering information of historical importance/valve from hereditary phsicians. The Institute publishes a Bulletin apart from maintaining the medico-historical Library and Museum.

The Institute collected information on Vaghbata and commentators of classical treatises from about 25 books, information on Agastya Naksatra and hamsodaka from works of Ayurveda. The manuscript titled Camatkara Nighantu, containing 25 verses has been edited and efforts are in progress to identify the drugs mentioned in the verses. The manuscript Madanadi Nighantu, comprising of 60 pages, has been printed. A manuscript "Ayurveda Sariramu" attributed to Ravana siddha has been obtained. 20 old rare books were got as gifts. The paper relating to Siddhabhesaja-manimala, comprising of 64 pages is in the process for publication. Information on medical conditions in Goa (14 pages) have been gathered. 11 articles have been prepared for publication.

Biographical information pertaining to 40 Physicians of Hyderabad belonging to the period of Nizam dynasty is gathered. A note on the Unani medical manuscript Mualijat Nebavi by Gulam Imam in persian was prepared after critical study of two available manuscripts. Translation work of the last chapter of Islami Tibb has been carried out upto the period of Nizam-IV. The Institute has provided referal services to several post-graduate students from various Institutes and scholars from this country and other foreign countries. A total of 116 scholars availed the services during the year. The reprographic section with the facilities of microfilming and plain copier helped several scholars including the research staff of the Institute.

During the period under report the library was rearranged and 37 books and 311 periodicals on Ayurveda, Yoga and other allied systems of medicine were procured. The Museum was rearranged and a few fresh charts, paintings and photos were added for the purpose of Video-filming. Microfilming of 10 manuscripts, 432 palm leaves and 744 pages of paper manuscripts was done. The Institute received Rs. 5,251.00 in India and Rs. 2,349.65 from abroad by sale of its publications.

Bibliography of the articles in Bulletin of the Department of History of Medicine (1963-65), Bulletin of the Institute of History of Medicine (1971-73) and Bulletin of the Indian Institute of History of Medicine (1974-85) has been completed and published in the Vol. XVI-1986.

Vol. XVI-1986 of Bulletin of Indian Institute of History of Medicine was brought out with 146 pages in English and 50 pages in Sanskrit. The miscellaneous portion of Madanadi Nighantu by Chandrananda edited by Prof P.V. Sharma was printed as a supplement to the Bulletin.

Documentation and Publication Division, New Delhi

The allocated programmes during 1987-88 were geared up further with a view to achieve the assigned targets. In the paragraphs that follow, brief details of the work carried out by various wings of the Division i.e. Documentation and Technical Information Wing, Library, Photo-cum-Printing Section and Publication Wing are presented.

The Documentation wing collected information on 18 Ayurvedic drugs both from classical works and current literature. The

references were gathered from Brihattrayi, Laghutrayi and other selected texts of Ayurveda as well as from periodicals. The drugs on which information was gathered include Basthantri, Hamsaspadi, Himsra, Japa, Kasturi. Kumbhika, Kumkuma, Lammajaka, Madhusnuhi, Matsyakshi, Paranaki, Pasupasi, Rohitaka, Sarapunkha, Vanyajiraka, Vasuk, Vridhadaruka and Brhat Lonika.

A comprehensive note covering pharmacognostical, chemico-pharmacological and clinical research aspects related to Guggulu has been prepared. A list of 400 Ayurvedic medicinal plants was prepared providing both Ayurvedic name and standard botanical nomenclature. This wing has also compiled clinical research information on time-tested Ayurvedic remedies useful in Yakrit roga and Pandu roga from Brihattrayi, Laghutrayi and other important Ayurvedic books.

The Technical Wing, in addition compiled details of traditional folk methods in practice for selected health problems based on information published and gathered by the medico-ethno-botanical survey teams.

Preparation of biographical series on the Ayurvedic articles of research value published during 1971-85 relating to clinical research, drug research and literary research has been taken up. The first phase covering 1981-85 with the bibliographical input of 600 research papers is nearing completion.

The Quarterly C.C.R.A.S. Documentation Bulletin released from the Centre provides digests of current research papers from ISM Journals, Technical Reports, Seminars/Scientific Proceedings in the fields of Ayurveda, Siddha and allied disciplines and are regularly mailed to Institutes/Centres/Units under the Council.

The division attended to technical quaries and provided, reference services (31) of various nature during the reporting period. Xerox copies of 13 research papers were provided to research workers on request for their research work.

The programme aimed at building up of research oriented Library has been enriched by addition of 417 books which includes procurement of four old rare Ayurvedic books i.e. Ranveer Prakash, Shalihotra, Veer Singh-avalok and Hareeta Samhita.

Steps were initiated to procure manuscripts and rare Ayurvedic works from oriental Institutes/Archives/PG Institutions of ISM/ Resource Vaidyas. Descriptive catalogues of manuscripts/old

Sanskrit medical books have been obtained from oriental Archives/ Museum in country and abroad. Information about the availability of two Ayurvedic books mentioned in the Drugs and Cosmetic Act has been gathered. Steps have been initiated to preserve old rare Ayurvedic books by way of utilizing modern maintenance techniques. Seven new research Journals on ISM have been selected and included under subscription/exchange programme with a view to enhance the Journal wealth of the Library.

Steps have been in progress to strengthen the microfilming activities of the Photo Section. Microfilm camera has been acquired during the period under report. Photographic coverage of as many as nine meetings/conferences have been completed besides preparation of the slides. 16,054 pages were xeroxed.

The publication lag of "Journal of Research in Ayurveda and Siddha" was covered with release of its Vol. IV & V in addition to release of Vol. VII No. 1-2.

The Vol. VII (No. 1-2) and conjoint issues covering Vol. IV and V of "Bulletin of Medico-Ethno Botanical Research" were released during the period under report.

The Council's News letters up-to October, 87 were released during the period under report.

Eight Research Monographs were processed for releasing them for printing through Institutes/Centres/Units under the Council besides releasing a booklet and souvenir on the eve of Silver Jubilee Celebrations of Captain Srinivasa Murty Drug Research Institute for Ayurveda, Madras. Apart from this two books Ashtangasangrah Part-II, a critical edition and "Pharmacopoeial Standards for Ayurvedic Formulations" a revised edition have also been published.

The publication wing arranged display of Council's publications during the conferences/Seminars of National importance and in the World Book Fair held at New Delhi in Feb, 88.

Literary Research Unit, Thanjavur

This Unit has copied the following three Ayurvedic manuscripts available at T.M.S.S.M. Library, Thanjavur :

(1) Nadivijnanam
(2) Netraroganidanam
(3) Nanavidha Vaidyam

1. Nadivijnanam : This is a paper manuscript in Devanagari script. This work has been copied from the original manuscript of the T.M.S.S.M. Library, Thanjavur. This work is in the form of a conversation between LordShivaand Parvathi on the humans nervous system. The treatment of the nervous diseases have been divided into 12 padales.

2. Netraroganidanam : This is a Palm-leaf manuscript written by Kapalika. It is believed that the manuscript was donated by Venkoji, physician to the then Maratha prince Shagi.

3. Nanavidha Vaidyam : This is a paper manuscript dealing with various diseases and their treatment.

The Press copy of the 'Sathasloki' and 'Netraprakashika' alongwith translation into English/Hindi has been prepared. The press copy has been compared and corrected with the original manuscripts of T.M.S.S.M. Library. The revised press copy has been prepared with correct pata-bhedas in Sanskrit and Tamil version. Beside this the Unit has coordinated in the editing work of Sharbhendravaidya Ratnavali and prepared the revised press copy for the publication.

The work on Chikitsamritsagar has been re-copied from the original manuscripts of the T.M.S.S.M. Library; the information from other manuscripts is used as foot-notes.

This Unit has a separate Library containing 1100 books and about 800 Palm-leaf manuscripts.

Central Research Institute (Ayurveda), Bhubaneshwar

The Central Research Institute (Ayurveda), Bhubaneshwar has prepared the draft copy of "Abhinava Chintamani" an important text in Oriya, in Devanagari script. The scrutiny of the draft is in progress. "Pathyapathya Vinischaya" by Pt. Vishwanath Sen of about 16th Century A.D. has been taken up for copying. The author has compiled the data on Pathyapathyas from classcial medical literature and from locally available treatises. The two manuscripts available in Orissa State Museum-one in Oriya script and the other in Devanagri script, were utilised for comparison and during preparation.

FAMILY WELFARE RESEARCH PROGRAMME

The Council has been carrying out two types of studies under this programme namely Clinical studies and Chemico-Pharmacological studies. Clinical studies are carried out for evaluation of plants/plant products as oral contraceptive agents to esta lish their known antifertility activities whereas Chemico-Pharmacological studies on experimental animals are carried out to establish mainly their anti-implantation, anti-ovulatory as well as effect on oestrous cycle. The toxicity studies of some of the drugs are also carried out to study their toxic effects, if any. The work carried out under both of these aspects is reported hereunder :

Clinical Studies

Clinical studies on plants/plant produts as oral contraceptive agents were continued further at the Institutes/Units functioning at Ahmedabad, Bombay, Calcutta, Delhi, Jaipur, Lucknow, Patiala, Madras, Trivandrum and Varanasi. The drugs studied during the reporting period include :

(a) AYUSH AC-IV (A coded drug)

(b) Pippalyadi Yoga

(c) Vandhyavari (*Vicoa-indica*)

(d) K-Capsule (A coded drug)

The following table provides the details about the number of new cases included into the study during the reporting period, number of old cases carried forward from previous year, number of drop outs and number of cases continuing at the end of reporting period, separately for each drug.

Table

Details of the cases studied for clinical evaluation of oral contraceptive agents

Name of the drug	Centre	Number of cases studied		Number of cases dropped out due to				Number of cases continuing the study
				Pregnancy		Side effects	Other reasons	
		New cases enrolled during the reporting period	Old cases carried forward from previous year	Drug failure	Drug Omission			
1	2	3	4	5	6	7	8	9
AYUSH-AC-IV	Lucknow	41	92	5	2	—	47	79
	Delhi	10	2	—	—	—	6	6
	Trivandrum	74	112	—	9	—	76	101
	Bombay	22	23	1	1	—	26	17
	Calcutta							
	Group-I	10	21	1	3	—	20	7
	Group-II	44	—	5	—	1	22	16

	Jaipur	32	42	—	—	—	70	4
	Patiala	21	11	5	5	1	14	7
	Madras	45	16	2	6	7	25	21
Pippalyadi Yoga	Ahmedabad	30	37	—	2	2	24	39
	Calcutta	29	16	5	1	2	25	12
Vandhyavari	Ahmedabad	7	1	—	—	—	2	6
	Varanasi	—	42	—	—	3	12	27
	Trivandrum	7	—	—	—	—	3	4
	Bombay	30	5	—	—	3	—	32
	Delhi	23	6	5	—	—	8	16
K-Capsule	Varanasi	49	94	6	—	2	42	93

Chemico-Pharmacological studies

Chemico-Pharmacological stdiues were continued further by the Units functioning at Bhubneshwar, Jamnagar, Trivandrum and Varanasi. The work carried out by these Units is reported here under :—

1. **Effect of Ghrit Kumari (*Aloe barbadensis*) (Aqueous extract) :** **PhRUFB**

The study was conducted in two doses i.e. 100 mg. and 200 mg./kg. body weight in female rats randomly divided in three groups, Ist group receiving 100 mg./kg. dose, IInd group receiving 200 mg./kg. dose and IIIrd group as control. Out of the 10 animals studied in each group, pregnancy remained intact in 10 out of 10 in control group, 6 out of 10 in 100 mg. dose group and one out of 10 in 200 mg. dose group on the day of autopsy.

2. **Effect of Gunja (*Abrus precaterious*)** (Water soluble portion of seed kernels) : **PhRUFB**

This study was conducted in the same manner as in case of Ghrit Kumari. The study showed that pregnancy remained intact on the day autopsy in nine animals out of 10 in control group, in five animals out of 10 in the group with 100 mg. dose and in no animal out of 10 in the group studied with 200 mg. dose.

3. **Effect of Neem Oil (*Azardirachta indica*) in male rats : PhRUFB**

The study showed reduction in weight of testis and epididymis, reduction in sperm motility rate and decrease in number of sperms in comparison to control group.

4. **Anti-implantation effect of Japakusum (*Hibiscus rosa sinensis*) :** **PhRUFT**

The decoction of the drug was administered in different doses i.e. 5, 10 and 20 mg./kg. in female albino rats in three different groups, each group having five animals. Another group of nine animals served as control. On autopsy (D 16th) there was reduction in number of corpus luteum. The study showed 60% anti-implantation effect in 10 mg./kg. group and 66.6% in the group

studied with 20 mg./kg. dose. This indicate that the decoction possessed only moderate anti-implantation effect which is rather insignificant in the present study in view of the 33.3% sterility observed in the control group. The decoction in the doses upto 50 mg./kg. (48 hours) administered orally did not showed any toxic effect.

5. Acute toxicity and LD_{50} in Mice and Rats : PhRUFT

The study conducted in albino rats and mice did not showed any toxicity upto the dose of 30 mg./kg. body weight.

The Unit functioning at Varanasi has carried out survey of Literature on Nirgundi (*Vitex negundo*) and Newarpatti (*Buddela asciatica*). The Unit has also prepared benzene, chloroform and methanol extracts of Nirgundi (root) using Soxhletion process. The yield of these extracts was found to be 1.6%, 1.5% and 70% respectively. Different fractions of benzene extract over coloumn chromatography were collected. Further studies are in progress.

PUBLICATIONS/PARTICIPATIONS

I Publications

Sl. No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
1	2	3	4	5
A.	**Clinical and Basic Research**			
1.	Dash, S.	Swastya Aur Sadachar	Ayurveda Vikash	July & August, 1987
2.	Jain, J.P.	A clinical trial of Palash (*Butea frondosa*) in worm infestations (Krimi roga)	JRAS, Vol. VII (1-2)	1986
3.	Nanda, G.C.	Paribesha Samhati or Ayurveda	Swastyabilash	May, 1987
4.	Nanda, G.C.	Parivar Niyojana or Ayurveda	Swastybilash	April, 1987
5.	Padhi, M.M.	Consideration of various aspects of Switra (leucoderma)	Sachitra Ayurved	July, 1986
6.	Prasad, R.A.	Diagnosis of Bleeding P.V. (Asrigdar)	Ayurdeda Mahasammelan Patrika	March, 1988
7.	Prem Kishore, Chaturvedi, M.K.	Clinical evaluation of certain herbal preparation in the treatment of chronic Slipada (Elephantitis)	JRAS Vol. VII (No. 1-2)	March/June, 1986

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1	2	3	4	5
8.	Prem Kishore, Padhi, M.M.	Studies on ancient concept of Imprinted Gastro-intestinal function. Enoropathy in the patho-genesis and treatment of Rheumatoid arthritis	Ancient Science of Life, Vol. VI (No. 4)	Aprtl, 1987
9.	Padhi, M.M.	Filariasis—An important Rural Health problem	Sachitra Ayurved	January, 1988
10.	Ramu, M.G. Venkataram, B.S., Janakiramaiah, N.	Manovikaras with special reference to Udvega (Anxiety) and Vishada (Depression)	NIMHANS Journal, 6 (1)	January, 1988
11.	Reddy, G.N., Ramu, M.G., Venkataram, B.S.	Concept of Manas (Psyche) in Ayruveda	NIMHANS Journal, 5 (2)	July, 87
12.	Shah, M.R.	'Sved' Ek Vihangavlokan	Sachitra Ayurved	August, 1987
13.	Sharma, P.C., Murty, K.S, Bhat, A.V., Narayanappa, D., Prem Kishore	Medicinal lore of Orissa II-Gastro-intestinal disorders	BMEBR, Vol. VII (No. 1-2)	March/ June, 1986
14.	Trivedi, V.P. Ansari, Z.	A study of Phototoxic properties of Kakodumbara	JRAS, Vol. IV (No. 1-4)	1983

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1	2	3	4	5
15.	Uniyal, M.R.	Ayurveda mein Vaishjad Drabya	Ayurveda Mahasammelan Patrika	December, 1987
16.	Uniyal, M.R.	Mansik Tanav mein Khan Pan or Oshdian	Ayurved Vikas	November, 1987
17.	Uniyal, M.R.	Ladakh ki Bansampada Amchi chikitsa pranali	Ayurved Vikas	January, July. August, September, October, November. 1987
18.	Venkata-raghavan, S., Sundaresan, T.P., Rajagopalan, V., Srinivasan, K., Janaki, K.	Constitutional study of Cancer patients its prognostic therapeutic scope	Ancient Science of Life Vol. VII (No. 2)	October, 1987
B.	**Health Care Research**			
19.	Hemadri, K.	Folklore medicine in India	Vivekananda Patrika Vol. 16 (1) : 31-38	1987
20.	Pandey, G.	Gramine Swasthya-Kautily ki Avadharana.	Sachitra Ayurved (40 (7) : 116)	1988
21.	Pandey, G.	Manasa Rogon mein Upyogi Vanaushadian.	Ayurved Vikas	1987
22.	Pandey, S.N.	Food habit and its effect on health of tribals of Navapur Taluka District Dhule (Maharastra).	Sachitra Ayurved	November, 1987

Contd.

1	2	3	4	5
23.	Singh, V.K. Krishna, A.	Some folklore medicines from District Subansiri of Arunachal Pradesh.	BMEBR. Vol. IV (No. 3-4)	December 1983
C.	**Medico-Botanical Survey and Cultivation**			
24.	Hemadri, K., Venugopal Acharya, M.	Medico-Ethno-Botanical Survey of Kolleru Lake including Estuaries of Krishna and Godavari Rivers (Eluru Forest Division).	Indian Medicine 37 (4) : 13-15 37 (5) : 14-15 37 (6) : 11-13	1987
25.	Hemadri, K., Venugopal Acharya, M.	Medico-Ethno-Botanical Survey of Viziangaram District.	Indian Medicine 37 (8) : 11-13 37 (9) : 11-14 37 (10) : 11-14 37 (11) : 11-14	1987
26.	Murthy, K.R.K. *et al.*	*Baliospermum razina* A new species of *Eupherbiaceae* from Coorg Dist. Karnataka.	Cur. Sc., 56 (10) 486	1987
27.	Murthy, K.R.K. *et al.*	*Garcinia darwiniana*-a new species of Glusiaceae from Coorg Dist. Karnataka.	Cur. Sc., 56 (9) 425	1987

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1	2	3	4	5
28.	Murthy, K.R.K. *et al.*	A new variety of *Hopea ponga* (Demnst.) Mabberly (*Dipterocarpaceae*) from Coorg Dist. Karnataka.	Cur. Sc., 56 (11), 544	1987
29.	Murthy, K.R.K. *et al.*	A new species of *Ilex* L. (*Aquifoliaceae*).	Cur. Sc., 56 (6) 270	1987
30.	Murthy, K.R.K. *et al*	A new species of *Litsea lamarek* (Lauraceae).	Cur. Sc., 56 (8), 371	1987
31.	Murthy, K.R.K. *et al.*	A new orchid from Coorg Dist. Karnataka.	Cur. Sc., 56 (12), 621	1987
32.	Pathak, N.N., Karnick, C.R.	Tribal cultivation of Nisoth.	BMEBR	1987
33.	Tiwari, K.C., Majumdar, R., Bhattacharjee, S.	Some medicinal plants of Dist. Siang and Subansiri of Arunachal Pradesh.	BMEBR, Vol. IV (No. 1-2)	March, June, 1984
34.	Uniyal, M.R.	Survey of Medicinal Plants identification in Sri Lanka.	Sachitra Ayurved	December 1987
35.	Uniyal, M.R.	Banoshodhi Servekshana.	Sachitra	May, 1987
D.	**Pharmacognostical and Chemical Research**			
36.	Agarwal, R.G. *et al.*	Identification of Dantibeej	BMFBR, VII (1-2) : 49	March-June, 1986

Contd.

1	2	3	4	5
37.	Banerji, J. *et al.*	Studies on Rutaceae, Pt. VI – Reactions and Rearrangements of Coumarins.	Indian J. Chem. 27, B, 21	1988
38.	Banerji, A. *et al.*	Assafoetidin and ferocolicin, two sesquiterpenoid coumarins from *Ferula assafoetida* Regel.	Tetrahedron Lett.	1988
39.	Barik B.R. *et al.*	Two phenolic constituents from *Alpinia galanga* Willd.	Phytochemistry, 26 (7), 2126-2127	1987
40.	Barik, B.R., Kundu, A.B.	A cinnamic acid derivative and a coumarin from *Murraya exotica* Linn.	Phytochemistry, 26 (12), 3319-3321	1987
41.	Chatterjee, A. *et al.*	New coumarins from *Edgeworthia gardneri* Meissn.	Indian J. Chem. 26B, 81	1987
42.	Chatterjee, A. *et al.*	Prasanthaline : a new lignan from *Jatropha gossypifolia* linn.	Indiau J. Chem.	1988
43.	Mandal, S., Chatterjee, A.	Structure of Chiratanin.	Tetrahedron Lett. Vol. 28, 1309	1987
44.	Nair, R.B. *et al.*	Anti-inflammatory effect of *Strobilanthes heyneanus* (Sahachara) Biochemical study.	BMEBR, Vol. VI (No. 2-4) 206	1985

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1	2	3	4	5
45.	Nair, R.B., Santhakumari, G.	Anti-diabetic activity of *Syzygium cumini* linn. Skeels.	Ancient Science of life Vol. VI (No. 2) 80-84	1986
46.	Nesamany, S. *et al.*	Guggulu.	Physician	1987
47.	Pandit, U.K. *et al.*	Synthetic Entry into Yohimbinoid Alkaloids and Novel syntheses of (±)-17-Methoxy hexadehydroyohimbene.	Tetrahedron, 43, 4235	1987
48.	Purushothaman, K.K. *et al.*	Occurrence of camphane-2, 3-diol in the fruits of *Heracleum sprengelianum* W. and A. and H. *concanense* Dalz.	Indian Drugs, 25 (5), 215	1988
49.	Purushothaman, K.K. *et al.*	Coumarins of *Heracleum sprengelianum* W. & A.	Indian Drugs, 25 (5), 178	1988
50.	Purushothaman, K.K. *et al.*	Structure of lansitrial.	Indian Drugs, 24 (5), 383	1987
51.	Purushothaman, K.K. *et al.*	Structure of racemol-(big) a rare coumarin from *Atalantia racemosa* W. and A.	Indian Drugs, 23 (10), 579	1986
52.	Purushothaman, K.K. *et al.*	Chemical constituents of *Lansium anamallayanum* Bedd.	Can. J. Chem., 65, 150	1987

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1	2	3	4	5
53.	Purushothaman, K.K., Vasanth, S.	Distribution of Sesquiterpenoid lactones of *Vicoa indica* DC from different regions.	Indian Drugs	1988
54.	Singh, J., Tewari, L.C.	Hallucinogenic plants of Kumaon Himalayas.	Aryavaidyan	1987
55.	Singh, J.	Pharmacognostical studies on Salaparni (Root and stem) characteristics of *Desmodium polycarpum* (Pairet) DC Pt. II.	International J. Crude Drug Res. 25 (4) 192	1987
56.	Tewari, L.C. *et al.*	Preliminary phytochemical screening of medical plants of hilly Disttricts (Kumaon and Garhwal Division) of U.P.	BMEBR, Vol. V. (1-2) 71	March-June, 1984
57.	Joshi, M.C.	Pharmaceutically important medicinal plants of Gujarat Forests.	BMEBR Vol. VII No. 1-2	March-June, 1986
58.	Singh, J., Lal, V.K., Trivedi, V.P.	Pharmacognostical evaluation of Katphala.	Ancient Science of Life, Vol. VI (No. 2)	Oct. 1986

Contd.

1	2	3	4	5
E. Pharmacology				
59.	Khanna, N.K.	Pratibal ka Chunhon kay Hirday kee Jeevrasayan krion per prabhav.	Ayurved Vikas	Jan., 1988
60.	Khanna, N.K., Jain, P.	Leukotrienes-a-fascinating group of autacoids.	Current Medical Practice	Jan., 1987
61.	Santha Kumari, G. *et al.*	Hypoglycaemic potential of *Murraya koenigii* Spreng (Karayapak).	BMBEER, Vol. VI (No. 2-4) 189-195	1985
62.	Santhakumari, G. *et al.*	Hypoglycaemic potential of *M. Koenigii* Spreng (Karayapak).	BMEBR, Vol. VI, 2-4	1985
63.	Shukla, B. *et al.*	New anti-glaucoma drugs.	Therapeutics and Drugs.	July-Sept., 1987
64.	Shukla, B. *et al.*	Effect of Brahmi Rasayan on central nervous system.	J. Ethno-Pharmacology Vol. 21	Nov. 1987
65.	Shukla, B. *et al.*	Alheimer's disease: some clinically useful Pharmacogical agents.	Current Medical Practice	Aug., 1987
F. Drug Standardisation				
66.	Ali, M. *et al.*	Availability, need and substitution of the single drugs of plant origin mentioned in the Ayurvedic Formulary of India Pt. I.	AYU No. 6	1987

Contd.

1	2	3	4	5
67.	Ojha, J.K., Dutta, S.k.	Standardisation of Ayurvedic drugs.	Amrit, Vol. I (No. 1) 47	1988
68.	Saxena, R.B.	Standardisation of Musaka taila.	Ayu	1987
69.	Saxena, R.B. *et al.*	Physico-chemical study of *Cassia fistula* Linn. seeds.	BMEBR, Vol. I (No. 1), 26-29	1987
70.	Saxena, R.B., Dholakia, M.V.	Standardisation of Gundharbahasta taila.	Aryavaidan, Vol. I (No. 1), 26-29	1987
71.	Saxena, R.B., *et al.*	Standardisation of Anu taila.	J. Anandaviyatri, Vol. 5 (No. 1), 13	1987
72.	Saxena, R.B.	Kinetic measurements of of swellings of Sanjivani vati.	Sachitra Ayurved No. 11, 797	1987
73.	Saxena, R.B., Mehata, H.C.	Thermodynamics of Tila taila and Panchaguna taila	J. Anandaviyatri, Vol. 4 (No. 1), 24	1986
74.	Srivastava, T.N. *et al.*	Ethno-medico-Botanical exploration of Gurez valley Kashmir.	BMEBR, Vol. V, No.1-2	1985
G. Family Welfare				
75.	Geetha, A. *et al.*	A clinical trial with AYUSH AC-IV, an Ayurvedic preparation for family planning.	JRAS, Vol. IV No. 1-4	1983

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1	2	3	4	5
H. Miscellaneous				
76.	Farooqui, R.	Medicine in the Deccan (from Islami Tibb.)	Bull. of IIHM Vol. XVI	1986
77.	Hymavathi,P.	Health and Hygiene in medieval Andhra and remonstration by Vamana.	Bull. of IIHM Vol. XVI	1986
78.	Madhukar, V.K.	Kuch Gharelu Nuskhe.	Arogya Sandesh Vol. 23 (12)	Feb., 1988
79.	Pandey, V.N., Sharma, K.D.	Kya Ayurveda Adhunika chikitsa se adhika upaogi Banasakata hae.	Arogya Sandesh Vol. 23 (12)	Feb., 1988
79A.	Arya, M.P.S.	Chhota Parivar Sukh Ka Adhar.	—do—	—do—
80	Pandey, V.N., Sharma, K.D.	Gramina Swasthya Seva mein Anusandhan parishad ki Bhumika.	Sachitra Ayurved	Jan., 1988
81.	Pandey, V.N., Sharma, K.D.	Antah Sravi granthiyon ke vikar our unka manasika prabhava.	Swasthya	Nov., 1987
82.	Rama Rao, B.	Manavalini Malaria Rakkasi nundi Kapadi na Ronald Ross.	Eenadu dory	1988
83.	Rama Rao, B.	Some aspects of medicine and health in Medieval Andhra.	'Essays on Science' felicitation volume, honour of Dr. S. Mahdivassan	1987

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1	2	3	4	5
84.	Rama Rao, B.	Noted Ayurvedic and Unani physicians and their activities during 1879-1950 (of Hyderabad Dist.).	History of Hyderabad Dist. 1879-1950 (Vol. I) Bharatiya Ithihasa Sankala Samithi, Hyderabad	1987
85.	Rama Rao, B.	Medico-historical information from non-medical sources.	Bull. of I.I.H.M. Vol. XVI	1986
86.	Rau, R.K.	Some interesting anatomical exhibits.	Bull. of I.I.H.M. Vol. XVI	1986
87.	Reddy, G.C.	Bibliography of articles in Bull. of Dept. of Hist. of med., Bull. of Ind. Instt. of Hist. of Med,	Bull. of I.I.H.M. Vol. XVI	1986
88.	Sharma, P.V.	The miscellaneous portion of madanadinighantu of Chandranandana.	Bull. of I.I.H.M. Vol. XVI	1986
89.	Tewari, V.P.	Manasika rogo me pranayam.	Ayurved Vikas	Dec., 1987
90.	Uniyal, M.R.	Grameen Jari Bootion see Upchar Avm lok sahitya me Ayurved.	Sachitra Ayurved	Jan., 1987
91.	Venkata Reddy M.	Hathayoga a Holistic system of medicine.	Bull. of I.I.H.M. Vol. XVI	1986

II. Participations

Sl. No.	Name of the author (s)	Title of the Paper	Name of the conference/ seminar/ workshop	Date of participation
1	2	3	4	5
A.	**Clinical and Basic Research**			
1.	Abhyankar, U.P.	The possible role of Traditional Medical System in the strenthening of modern medical system.	Workshop held at Pune.	11-12 March, 1988
2	Chopra, K.K.	Use of Indigenous drugs in the management of cancer.	Varanasi.	3-6 February, 1988
3.	Dixit, K. *et al.*	A clinical assesment of *Melia azadirachta* (Neem) in some skin disorders.	Xth International congress of Pharmacology (IUPHAR), Sidney, Australia.	August, 1987
4.	Kuppurajan, K., Seshadri, C., Chari M.V.	Hypoglycaemic effect of *Coccinia indica* W.&A., *Curcuma longa* Linn and *Emblica officinalis* in Diabetes mellitus cases.	National seminar on Indigenous drugs and Non-Drug therapy in Diabetes mellitus. Sponsored by Indian Holistic Medical Association.	4-5 March, 1988

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1	2	3	4	5
5.	Nair, C.P.R.	The thesis on Psoriasis.	Seminar on founders day at Kottakal, Kerala.	June, 1988
6.	Nair, C.P.R.	Clinical trial on psoriasis.	Workshop on Kalanjaga-padai at Madras.	November, 1987
7.	Nair, P. Ramachan-dran, *et. al.*	Bastikarma—A quicker method to achieve system drug concentration.	9th annual function and symposium on Basti chikitsa held at Mysore.	14-15 November, 1987
8.	Pillai, N.G.K.	The study of Psoriasis as maha dadru and ring worms as kshudra dadru non exudative dermatitis as Kitibha.	Workshop on Psoriasis held at Madras.	7-8, November, 1987
9.	Prasad, R.A., Chaubey, S.N.	Hypoglycaemic effect of Nimba yoga in cases of Madhumeha.	Seminar at Jaipur.	4-5 March, 1988
10.	Prem Kishore	Health care India —1988	The Indian International and laboratory equipment exhibition-cum- conference, New Delhi.	23-24 March, 1988

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1	2	3	4	5
11.	Sachchida-nand	Trial of Indigenous drugs on cancer.	Seminar on Ind. Drug on the treatment of cancer.	March, 1988
12.	Venkatara-ghvan, S. *et al.*	Workshop on Guinea worm and leprosy.	Under Samidha Charitable Trust, Thane, Bombay.	2 February, 1988
B.	**Health Care Research**			
13.	Pandey, G.	Potential inputs of Psychosomatic approach.	National convention on Ayurvedic Res. Methodology, Jaipur.	March, 1988
14.	Purusho-thaman K.K. *et al.*	Sahachara—An Ayurvedic drug.	—do—	March, 1988
C.	**Medico-Botanical Survey and Cultivation**			
15.	Bhat, A.V., Nesamany S.	Medicinal Plants	Seminar on Medicinal plants, Ayurveda College, Trivandrum.	1987
16.	Billore, K.V.	Some threatened medicinal plants in Rajasthan and their conservation.	Presented in Xth All India Botanical Conference held at Patna.	1987

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1	2	3	4	5
17.	Billore K.V.	On the role of herbaria in Medico-botany	National seminar on role of herbaria in scientific res. and development held at Deptt. of Bot. University of Rajasthan Jaipur.	1987
18.	Majumdar, R.	A preliminary study on ethno-medico-botanical aspect of plants from Assam, India.	IInd training course on Ethno-botany held at Lucknow.	10-18 March, 1988
D.	**Pharmacognostical and Chemical Research**			
19.	Alam, M.M.	Studies on the preparation of "777 oil" used for Psoriasis in Siddha system of medicine.	Workshop on Kalanjaga-padai (Psoriasis), Madras.	8th November, 1988
20.	Barik, B.R. *et al.*	Zizyberone, a new pantacyclic triterpenoid from *ziyzyphus jujuba.*	24th Annual Convention of Chemists, Shivaji University, Kolapur.	1987
21.	Brindha, P.	Pharmacognostic studies on *Clerodendrum nerifolium* Vahl.	Silver Jubilee Celebrations of CSMDRIA, Madras.	13-14th November, 1987

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1	2	3	4	5
22.	Chatterjee, A.	Platinum Jubilee Lecture.	75th Session of the Indian Science Congress, Pune.	1987
23.	Chatterjee, A.	Chemical Transformation of Ajamalicines, A biologically active indole from Apocynaceous species.	The first Princess chulabherin Science Congress, International Congress on Natural products.	1987
24.	Chatterjee, A.	On some aspects of phytochemistry.	Silver Jubilee celebration of CSMDRIA, Madras.	13-14th November, 1987
25.	Chatterjee, A.	Guest Lecture.	74th Session of the Indian Science Congress, Bangalore.	1987
26.	Chatterjee, A.	Trends of Research on Natural Products in India.	Symp. on Chemical Education in India, Trend of Chemical Research in India and Chemistry Society (Calcutta University, Calcutta).	1987

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1	2	3	4	5
27.	Gopal, H.	Testing of vetpalai oil (777 oil) against few microbes.	Workshop on Kalanjaga padai (Psoriasis), Madras.	7-8th November, 1987
28.	Krishnaswamy, M.	Antitumour activity of arbortristoside-B in albino rats.	Silver Jubilee celebration of CSMDRIA, Madras.	13-14th November, 1987
29.	Mandal, S. *et al.*	Isolation and Identification of a new coumarin from *Mehidesmus indicus*.	7th Annual Conference of Indian Council of Chemists.	1987
30.	Narayanappa, D.	Histo-morphological studies on vetpalai (*Wrightia tinctoria* R.Br.)	Workshop on Psoriasis, at Madras.	7-8th November, 1987
31.	Narayanappa, D.	Pharmacognostical studies on the leaf of *Pisonia grandis* R.Br.	Ist Siddha Scientific Conference, Trivandrum.	5-6 June, 1987
32.	Purushothaman, K.K., *et al.*	Structural studies of iridoids from *Barleria prionitis* Linn.	13th Annual symp. in Chemistry, IIT, Madras.	17-28th February, 1988
33.	Purushothaman, K K. *et al.*	Chemical constituent of *Heracleum sprenglianum* W. and A. and H. concanense Walz.	Seminar on Standardisation of Ayurveda and Siddha preparations vis-a-vis Phytochemical Investigations, Madras.	13-14 November, 1987

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1	2	3	4	5
34.	Purushothaman, K.K., *et al.*	Pharmacognostic studies on *clerodendrnm nerifolium* vahl.	Seminar on standardisation of Ayurveda and Siddha, preparations vis-a-vis phytochemical investigations, Madras.	13-14 November, 1987
35.	Purushothaman, K.K., *et al.*	Phytochemical examinatinn of an unidentified Siddha drug, contribution of structural chemistry and its systematic identification.	12th Annual Symp. in chemistry, IIT, Madras.	7-8 November, 1987
36.	Purushothaman, K.K. *et al.*	Structural studies of iridoids from *Barleria prionitis* L. Isolation of monoterpenediol from *Vicoa indica* D.C.	13th Annual symposium in Chemistry, IIT., Madras	27-28 Feb., 1988.
37.	Saraswathy, A.	Chemical constituents *of Heracleum concanense* Walz and *H. sprengelinum* W. & A.	Silver Jubilee celebrations of CSMDRIA, Madras	13-1[illegible], Nov., 1987
38.	Sharma, P.C.; Yelne, M.B.	Need of Pharmacognostic studies with reference to climatic and ecological factors.	Workshop on role of Traditional medicine held at B.J. Medical College, Pune	March, 1988

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1	2	3	4	5
39.	Dey, D., Das, M.N.	Identification of the fruit of *Elaeocarpus ganitrus* Roxb. (Rudraksha) Pharmacognostic analysis.	Proc. 75th session Indian Sci. Cong., Pt. IV, Section VI, Abst. No. 208, p. 147	Jan., 1988
40.	Dey, D., Das, M.N.	Identification of the flowers of *Woodfordia fruticosa* Kurz from pharmacognostic point of view.	India Biologist, XIX (No. 2)	1987
E. Pharmacology				
41.	Dixit, K.S., Singh, N.	An assessment of immunomodulator activity of some antistress Indian plants.	Xth International Congress of Pharmacology (IUPHAR), Sidney, Australia.	Aug., 1987
42.	Kalsi, R. *et al.*	Effect of stress and antistress drugs on succinate dehydrogenase enzyme in rat brain.	National Symp. of Physiology Human Performance, Delhi.	Sept., 1987
43.	Misra, N. *et al.*	An experimental assessment of dependence of liability of some benzodiazepines.	Xth International Congress of Pharmacology (IUPHAR), Sidney Australia.	Aug., 1987

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1	2	3	4	5
44.	Misra, N. *et al.*	Plant drugs and biological changes during stress	National Symp. of Physiology of Human Performance, Delhi	Sept., 1987
45.	Saxena, A.K.	Effect of *Ocimum sanctum* (Tulsi) on physical endurance during thermal stress.	National Symp. of Physiology of Human Performance, Delhi.	Sept , 1987
46.	Singh, N. *et al.*	Long term efficacy and tolerance of *Cyperus rotundus* in rheumatoid arthritis and osteoarthritis.	Xth International Congress of Pharmacology (IUPHAR) Sidney, Australia.	Aug., 1987
47.	Singh, S.P. *et al.*	A study of the role of some CNS receptors in stress.	National Symp. of Physiology of Human Performance, Delhi.	Sept., 1987
48.	Singh, N. Misra, N.	Stress, stress disease and their possible remedy by anti-stress drugs (adaptogens/ staminators) of plant origin.	National Symp. of Physiology of Human Performance, Delhi.	Sept., 1987
F. Drug Standardisation				
49.	Dutta, S.K. *et al.*	Standardisation of Asavas and Aristas.	Silver Jubilee celebrations of CSMDRIA, Madras.	13-14 Nov., 1987

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1	2	3	4	5
50.	Saxena, R.B. *et al.*	Standardisation of arngabhasma.	74th Indian Science Congress Association at Bangalore.	1987
51.	Saxena, R.B. *et al.*	Standardisation of Asvagandha taila.	Proc. 7th Annual Conference ICC at Gwalior.	28-31 Dec., 1987
G. Miscellaneous				
52.	Ali, M.	Problems in the standardisation of Ayurvedic drugs.	National Convention on Ayurvedic Research Methodology, Jaipur.	March, 1988
53.	Dhar, Bishnupriya	International Union of Anthropological and Ethnological science.	Workshop on Ethnobotany organised by by S E.B.S. and N.B.R.I., Lucknow.	10-18th March, 1988
54.	Rama Rao, B.	Medical conditions in medieval Andhra.	A.P. Oriental conference at Hyderabad.	Dec., 1987
55.	Rama Rao, B., Basveswar Rao, A.V.	Methods of Traditional Ayurvedic Practitioners.	National Convention on Ayurvedic Research Methodology, Jaipur.	March, 1988

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1	2	3	4	5
56.	Rama Rao, B.	Problems in the study of medical literature.	National Convention on Ayurvedic Research methodology, Jaipur.	March, 1988
57.	Pandey, V.N. and Sharma K.D.	Ayurveda main Anusandhan ke kshetra.	Ayurvedic College, Magarual, Gwalior	Nov., 1987
59.	Sharma, K.D., Madhukar V.K.	AIDS ki jwala me Paschim ka manav.	National seminar on AIDS, Tibbia college, New Delhi	11-13 March, 1988
60.	Yadava, R.S.	Information on Network on medicinal and aromatic plants.	P.I.D. Govt. of India, Delhi	10th April, 1987

TECHNICAL REPORT—SIDDHA

Abbreviations used for Institutes/Units of Siddha System of Medicine

Sl. No.	Name of the Institutes/Units	Abbre-viation	Year of establish-ment
1	2	3	4
1.	Central Research Institute Siddha, Madras.	CRISM	1970
2.	Regional Research Institute Siddha, Pondicherry.	RRISP	1979
3.	Clinical Research Unit Siddha, Palayamkottai.	CRUSP	1980
4.	Clinical Research Unit Siddha, New Delhi.	CRUSD	1981
5.	Clinical Research Unit Siddha, Trivandrum.	CRUST	1986
6.	Mobile Clinical Research Unit Siddha, Madras.	MCRUSM	1979
7.	Drug Research Scheme (Multi-Disciplinary), Madras.	DRS(MD)M	1979
8.	Drug Standardisation Research Unit Siddha, Madras.	DSRUSM	1979
9.	Drug Standardisation Research Unit Siddha, Bangalore.	DSRUSB	1982

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1	2	3	4
10.	Drug Standardisation Research Unit Siddha, Trivandrum.	DSRUST	1981
11.	Tribal Health Care Research Project Siddha, Tirupathur, North Arcot. Dist.	THCRPST	1986
12.	Tribal Health Care Research Project Siddha, Kalasa, Chikamagalore Dist.	THCRPSK	1986
13.	Survey of Medicinal Plants Unit, Siddha, Palayamkottai.	SMPUSP	1971
14.	Literary Research and Documentation Department Siddha, Madras.	LRDDSM	1979

CLINICAL RESEARCH PROGRAMME

Clinical Research is being carried out on certain selected clinical conditions at the Institutes/Units of the Siddha System of Medicine functioning under the Council. Clinical conditions studied during the reporting period include Valligunmam (Peptic ulcer), Putrunoi (Cancer), Manjal kamalai (Infective hepatitis), Sandhi vatha soolai (Rheumatoid arthritis), Kalanjaga padai (Psoriasis), Vellainoi (Leucorrhoea). Peruvaeeru (Ascitis), Gunmam (Intestinal disorders), Veluppunoi (Anaemia), Venkuttam (Leucoderma), Neerazhivu (Diabetes mellitus), Oothal noi (Obesity). Karappan noi (Skin diseases), Vatha soolai, Kalladaippu and Kuruthi Azhutham etc. The research work carried out during the period under review is reported hereunder :—

Putrunoi (Cancer)

Putrunoi is described in Siddha texts under the head Virananoigal. This was described as Putru and it is named after the affected organ i.e. if the breast is affected it is called Mulai putru noi. The study was under-taken at Central Research Institute (Siddha), Madras to evaluate the effectiveness of Siddha drugs in cases of Putrunoi. The coded drugs *RGX* consisting of mercury, sulphur and Serankottai (*Semicarpus anacardium*), VK_2 consisting of Venkodiveli (*Plumbago zeylanica*) and *SKX* consisting of fried nuts of Serankottai (*Semicarpus anacardium*) were used. These drugs were administered with honey. As a supporting therapy, ulcers, tumours etc. were dressed with Nithiyakalyani elai Kalkam and Pachiennai with thurusu. 78 cases were treated during the period under review. All the cases responded well to the treatment. Average duration of the treatment was 60 days. After discharge, these cases are followed up at out patient department of the Institute. Out of 78 cases treated, 29 cases were of yoniputru (Cervix uteri), 14 cases of Thondai and Annakku putru (Cancer of throat and palate) and two cases of Mulai putru (breast Cancer). Reduction in the size and growth of the ulcers, tumours, reduction or arrest of the discharge and also reduction in pain were noticed in

almost all the cases. The details of the results of the treatment are reported as below :—

Table

Results of clinical therapeutic trials of Siddha preparations on Putrunoi (Cancer) at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
RGX, SKX, VK_2 (One gram TDS)	—	—	5	14	59	78

Kalanjaga Padai (Psoriasis)

Kalanjaga padai has been taken up for study using 777 Oil, coded drug formulated by the Central Research Institute (Siddha), Madras. 10 ml of 777 Oil with milk was administered in two divided doses in all the 118 cases selected for study. The patients were advised to apply oil externally on the affected parts of the body. The details of result of treatment are reported as hereunder :—

Table

Results of clinical therapeutic trials of Siddha preparations on Kalanjaga padai (Psoriasis) at a glance

Drug	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
777 oil (5ml. BD)	6	32	56	18	6	118

No side effects were observed. Recurrence of mild nature was seen in a few cases after discontinuation of the treatment.

Velluppunoi (Anaemia)

Velluppunoi is described as of five varieties. They are Vatha, Pitha, Kapa, Mukkuttra and Vida Velluppunoigal. Studies on Velluppunoi were conducted at Regional Research Institute (Siddha), Pondicherry and Clinical Research Unit, Palayamkottai. A total number of 86 cases have been treated adopting different therapeutic approaches. The following table provides the results of study :—

Table

Results of clinical therapeutic trials of Siddha preparations on Velluppunoi (Anaemia) at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Aya Brangaraja Karpan (260 mg.) three times a day	18	15	—	—	7	40
Annabedi chendooram (250 mg.) three times a day	19	7	6	8	6	46
Total	37	22	6	8	13	86

Gunmam (Intestinal disorders)

Eight types of Gunman has been described in Siddha texts. According to the Siddha texts, the disease occurs due to irregular dietetic habits, indigestion of hot and spicy food and addiction to alcohol. It also occurs due to stress and strain. Due to this, Vatha and Pitha get vitiated resulting in loss of appetite, dyspepsia, pain in the epigastric region and vomiting etc. The study on this clinical condition was carried out at Regional Research Institute (Siddha), Pondicherry and Clinical Research Unit (S), Palayamkottai using different drugs. Details of the result of treatment are reported hereunder :—

Table

Results of clinical therapeutic trials of Siddha preparations on Gunmam (Intestinal disorders) at a glance

	Drugs	Results of treatment					
		Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
1.	Gunmagudori mezhugu (1 gm.) (Thrice daily)	—	—	—	—	2	2
2	Uppu chendooram No. 1 (200 mg.), (Twice daily)	3	20	—	—	15	38
3.	Athimathura choornam (1 gm. Twice daily)	1	—	—	—	—	1
	Total	4	20	—	—	17	41

Oothal noi (Obesity)

Four varieties of Oothal noi i.e. Vatha, Pitha, Kapa, and Mukkuttra are mentioned on the basis of Mukuttra Verupadugal. Consumption of hot and spicy foods, spoiled and poisoned food, food contaminated with ash, mud and other impurities are some of the factors responsible for causation of this condition. This clinical condition is also found associated with Velluppunoi, Sanni, poisonous snake bites etc. Kapa gets vitiated in this clinical condition. This study was conducted at Regional Research Institute (Siddha), Pondicherry using different drugs. The following table provides the details related to line of approach and the number of cases treated together with the results of treatment.

Table
Results of clinical therapeutic trials of Siddha preparations on Oothal noi (Obesity) at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Vediuppu chunnam (130 mg.) with Mullangi charu (twice daily)	—	4	—	—	1	5
Mandoorathi adai Kudineer (60 ml.) (twice daily)	2	5	—	—	2	9
Veduppu chunnam (130 mg.) with Mullangi charu and Mandoorathi adai kudineer (60 ml.) (twice daily)	—	—	—	—	1	1
Total	2	9	—	—	4	15

Kazhichal (Digestive disorders)

The study on Kazhichal was carried out at Clinical Research Unit, Palayamkottai and the details of result is tabulated hereunder :—

Table
Results of clinical therapeutic trials of Siddha preparations on Kazhichal (Digestive disorders) at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Padiga linga thuvar (500 mg.) with Elumichempazha charu (Two times a day)	11	—	—	1	2	14

Sandhi Vatha Soolai (Arthritis)

Sandhi vatha soolai which is identified as Rheumatoid arthritis in modern parlance, is one of the 80 varieties of Vatha diseases described in Siddha Medicine. A study to evaluate the effect of Gowrichinthamani and Linga Chendooram in the management of Sandhi vatha soolai was taken up at Central Research Institute (Siddha). Madras. 300 mg. each of Gowrichinthamani and Linga chendooram was administered two times a day with honey in all the 53 cases studied during the reporting period. Tamarind and chilli free diet with less salt was advised during treatment. Kukil Thailam/Myna thailam was used externally on the affected parts. The details of result of treatment are reported hereunder :

Table

Results of clinical therapeutic trials of Siddha preparations on Sandhi Vatha Soolai (Arthritis) at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Growrichinthamani Linga chendooram (300 mg. each) (Two times a day)	—	16	18	5	14	53

Manjal Kamalai (Infective hepatitis)

Manjal kamalai is one of the 13 varieties of Kamalai described in the Siddha literature. Manjal Kamalai was studied at Central Research Institute (Siddha), Madras. The kalkam made of Kozhi avarai was administered in the doses of 5 gm. two times a day with water in all the 30 cases selected for the trial. Salt and fat-free diet was recommended to all the cases. No side/toxic effects were noticed. The details of results of treatment are reported hereunder :—

Table

Results of clinical therapeutic trials of Siddha preparations of Manjal kamalai (Infective hepatitis) at a glance

Drug	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Kozhi avarai kalkam (5 gms.) (K 3) (Two times a day)	1	22	5	1	1	30

Valigunman (Peptic ulcer)

Valigunmam equated to peptic ulcer in modern parlance is one of the eight varieties of Gunmarogangal described in Siddha literature. The study was undertaken at Central Research Institute (Siddha), Madras to study the effect of Thambiram (copper) in this condition. The cases having pain in the abdomin in relation to food, discomfort in the epigastric region, nausea, vomiting, eructation, haematemisis, reduction in body weight are selected for trial. The diagnosis was further confirmed by FTM and Barium meal X-ray reports. Thambira chendooram prepared using Karunthulasi charu and Thambiram and coded as P6 was administered at the dose level of 45 mg. with honey two times a day for 5 days. On 6th day Omambath was given and on 7th day Jeeraga thailam bath was given to all the 70 cases studied during the reporting year. The course was repeated twice. The clinical assessment was made after each course of the treatment. No side/ toxic effects were reported. The details of result of treatment are reported below :

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Results of clinical therapeutic trials of Siddha preparations on Valigunmam (Peptic ulcer) at a glance

Drug	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Tambira chendooram (P 6) (45 mg.) two times a day)	3	43	17	—	7	70

Venkuttam (Leucoderma)

Venkuttam has been described in Siddha texts as one of the Kuttanoigal. Response of certain selected Siddha drugs was studied in the cases of this disease at Clinical Wing of the Drug Research Scheme (MD), Madras. No toxic/side effects were noticed after treatment and also during the follow-up period. The details of result of treatment are reported hereunder :—

Table

Results of clinical therapeutic trials of Siddha preparations on Venkuttam (Leucoderma) at a glance

Drugs	Results of treatment						
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	LAMA	Total
Kandankathiri choornam and Kandankathiri ennai	—	1	2	7	10	—	20
Ponnimalai chendooram (250 mg.) with honey	—	—	2	21	38	1	62

Muraijwaram (Periodic fever)

Muraijwaram was taken up for study at the Clinical Research Unit (Siddha), Palayamkottai. Linga chendooram at the dose level of 250 mg. with honey was administered three times a day in all the ten cases admitted in the In-patient department of the Unit. Light and fat free diet was advised during the treatment. The details of result of the treatment are reported hereunder :—

Table

Results of clinical therapeutic trials of Siddha preparations on Muraijwaram (Periodic fever) at a glance

Drug	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Linga chendooram (250 mg.) with honey (Three times a day)	7	1	—	—	2	10

Vatha Soolai

Vatha soolai is one of the 80 varieties of Vatha diseases described in Siddha texts. A study was initiated to evaluate the effect of Chandamarutham and Vatha kesari thailam in the management of this disease at Regional Research Institute (Siddha), Pondicherry. 130 mg. Chandamarutham was administered two times a day in one group (Group-A), Vatha kesari thailam was advised externally in another group (Group-B) and combination of the both was administered to the third (Group-C). 41 cases were studied during the reporting period. Tamarind and chilli free diet with less salt was advised during the treatment. The details of result of treatment are reported hereunder :—

Table

Results of clinical therapeutic trials of Siddha preparations on Vatha soolai at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
A. Chandamarutham (130 mg. twice daily)	10	6	—	—	6	22
B. Vathakesari thailam (QS) Ext. Application)	7	4	—	—	4	15
C. Combination A and B	—	—	—	—	4	4
Total	17	10	—	—	14	41

Kuruthi Azhutham (High BP)

Kuruthi azhutham is one of the Pitha diseases described in Siddha medicine. It is otherwise called as Kuruthi pitha noi/ Kuruthi azhutham . Kuruthi azhutham was studied at Regional Research Institute (Siddha). Pondicherry. Five cases were taken up for study during the reporting period. Fat and salt free diet was recommended to all the cases. No side/toxic effects were noticed. The details of result of treatment are reported hereunder :—

Table

Result of clinical therapeutic trials of Siddha preparations on Kuruthi azhutham (High BP) at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Seerage choornam (one gm.) twice daily	—	1	—	—	—	1
Tiripala choornam, (one gm.) twice daily	—	2	—	—	2	4

Kakkai Valippu (Epilepsy)

The Clinical Research Unit (Siddha), Palayamkottai carried out the study on Kakkai valippu known as epilepsy in modern parlance. 10 drops of Pachondi sudar thailam was administered with Inji charu (Ginger juice) two times a day for 40 to 50 days to all the nine cases taken up for study.

Table

Results of clinical therapeutic trials of Siddha preparations on Kakkai valippu (Epilepsy) at a glance

Drug	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	LAMA	Total
Pachondi sudar thailam (10 drops) twice daily	—	2	1	2	4	9

Neerazhivu (Diabetes mellitus)

Neerazhivu is described under Saruneer Perukkunoigal in Siddha literature.

The study on Neerazhivu using Abraga chendooram was carried out at Clinical Research Unit (Siddha) functioning at Safdarjung Hospital, New Delhi and also at Clinical Wing of Drug Research Scheme (MD), Madras. The mild and moderate cases of Neerazhivu were taken up for study. The line of approach and the results are summarised in the following table :—

Table

Result of clinical therapeutic trials of Siddha preparations on Neerazhivu (Diabetes mellitus) at a glance

Drugs	Results of treatment						
	Comp. cont.	Mark. cont.	Mode. cont.	Mild cont.	No cont.	LAMA	Total
Abraga chendooram (200 mg.) twice daily	—	10	7	—	—	7	24
Keezhaneeli churnam (1 gm.) thrice daily	—	—	1	4	31	2	38

Peruvaeeru (Ascitis)

The study on this clinical condition was carried out at Regional Research Institute (Siddha), Pondicherry using Vediuppu chunnam in the dose of 130 mg. three times a day for 21 days with Karumbucharu as vehicle. The effect of the drug is enhanced by prescribing Kanji (Porridge) consisting of Vellari paruppu, Moolampazha paruppu and Tharboosanai paruppu. Out of the four cases of this condition, one case showed complete relief, and one marked relief and the remaining two cases were discharged against medical advice.

Karappan (Skin disorders)

Karappan is one of the varieties of the skin diseases that was taken up by the Clinical Research Unit, Trivandrum. Irunelli karpam and Gandhaga rasayanam were studied in two groups. A total of 32 cases were studied during the period under review. The details of the results of the treatment at are as below :—

Table

Results of clinical therapeutic trials of Siddha preparations on Karappan (Skin disorders) at a glance

Drugs	Results of treatment					
	Comp. rel.	Mark. rel.	Mode. rel.	No rel.	LAMA	Total
1. Irunelli karapam (130 mg Two times a day)	5	3	—	—	2	10
2. Gandhaga rasayanam (150 mg Two times a day)	16	4	—	—	2	22

Among the cases treated with Irunelli karpam, recurrence was noted in the cases after two months of the discontinuation of the treatment due to not following the diet restrictions prescribed.

Table

Statement showing number of patients attended at OPD and IPD during 1987-88

Sl. No.	Institute/Unit	Number of patients attended			
		OPD			IPD
		New	Old	Total	
1.	CRI(S), Madras	9,222	13,430	22,652	349
2.	RRI(S), Pondicherry	5,331	11,700	17,031	157
3.	CRU(S), Palayamkottai	1,007	3,217	4,224	80
4.	CRU(S), New Delhi	64	269	333	—
5.	CRU(S), Trivandrum	1,382	3,746	5,128	—
	Total	17,006	32,362	49,368	586

HEALTH CARE RESEARCH PROGRAMME

The work on Health Care Research Programme is taken up through Mobile Clinical Research Units attached to Central Research Institute (Siddha), Madras, Regional Research Institute (Siddha), Pondicherry and Tribal Health Care Research Projects located at Tirupathur, and Kalasa. The Units visited selected villages for gathering Health statistics data as per the prescribed proforma. The details relating to socio-economic and personal factors concerning each individual are recorded. The teams also propagate principles of health care, prevention of diseases, enviromental sanitation etc. to the local folk. The teams also collected folk-lores information prevalent in the area. Incidental medical was provided to the needy.

Mobile Clinical Research Unit, Madras

The team conducted 98 trips during the year and collected information on 1208 individuals from the villages Kattuppakkam and Meppur. The team collected details about 1200 individuals found suffering with one or the other illness during survey. 5214 (1052 new) patients were provided medical aid. Irumal, Eraippunoi, Perumkazhichal, Peruvaeeru, Thalaivali, Tholnoigal, Veppunoi, Vellaithettu, Pun, Vaeeiu vali, Muttu vali etc. are some of the common diseases found in the area.

Regional Research Institute, Pondicherry

The team conducted eight trips to Korukkadu village and collected information from 168 diseased persons. 118 patients were benefitted through incidental medical aid.

Tribal Health Care Research Project, Tirupathur

Ananthavoor and Nilavoor tribal pockets were taken up for survey during the period under review. The team collected information about 486 persons found suffering during the survey.

1015 patients were provided incidental medical aid during the visits. Kadukkai (*Terminalia chebula*), Puli (Tamrind), Pala (Jack fruit), Koyya (Guava), Madulai (Pomegranate), Honey, Kalpasi and Marapasi are some of the natural resources found in the forest area. The wild life seen includes bear, spotted deer, blackbuck, deer, monkey, rabbit, mangoose, porcupine.

Tribal Health Care Research Project, Kalasa

During the year 1987-88, the Unit visited Horanadu, a village having population of 7000 individuals. 428 patients suffering with Kudarpuzhunol and nerkovai belonging to 140 families were treated. The information regarding addictions were collected.

MEDICO-BOTANICAL RESEARCH PROGRAMME

It is a well known fact that Murunthu (drug) is the primary tool of entire research programme. Survey of forest areas procuring drugs and arranging supply of the material required for research purposes occupies an important place. The study of quantitative and qualitative avalibility of medicinal plants used in Siddha Medicine has been taken up by Survey of Medicinal Plants Unit, Palayamkottai.

During the reporting year 6 Survey tours were conducted in various forest areas of Selam, Dharmapuri, Kamaraj, Anna and Triunelveli Districts. Apart from this three local tours were also conducted for drug collection. 402 herbarium specimens having Siddha medicinal importance and Pharmacognostically interest falling in 67 families of 326 genera of 366 species were collected and reported. Ninety-one herbarium sheets were added to the herbarium. The medicinal plants collected during the above tours include Kandram (*Indigofera hitra* Linn. F.), Thelkodikkilai *Martyneia annual*), Ponmusttai (*Cissampelos pareira* L.), Veera singam pattai (*Zanthoxylum tetraspermum*. W.&.A.), Narikanda (*Aegiceras corniculatum* Blanco), Khetpapra (*Oldenlandia biflora* L.), Chimattai (*Desmodium latifolium* DC), Pala (*Artocarpus integrifolius* L.), Siruthekku (*Clerodendrom serratum* Spr.), Vetapalai (*Wrightia tinctoria* R.Br.).

Orithalthamari (*Ionidium suffruticosam* Ging), Kavalam (*Sterculis gatta* Roxb), Madpulanti (*Fluggea tcucopyrus* willd), Valaluvai (*Celastrus paniculate* Willd), Palpattai, Ilizlaipalai (*Alstonia schloaris* R.Br.), Moolakarunai (*Arisaema fortuosum* Schott.) etc.

32 Crude drug samples were collected and added to the museum. These includes Postakai (*Papaver samniferum* L.), Perikkai (*Perus communis* L.), Shenkurinji (*Glutta travancorica* Bedd.), Karunkongua (*Hopea-wightiana* Wall), Kattu elam (*Amomum cannaccarpum* Benth), Kollan kovai (*Corollocarpus epigeaus* H.K.F.), Karum Kungiliam (*Canarium stricutum* Roxb), Chakkadai (*Ficus beddomei* king. Arn.), Palpattai (*Alstonia scholar*is R.Br.), Veda gurini

(*Radermachera xylocarpa* K. schum), Pootha karppan pattai (*Schchere wallichiana* Harms.), Malai agil (*Chukrasis atabularis* A. Juss.), Malam puluvan (*Ammoora rohituka* w.&A.), Iviralikkodi, *Bryonopsis laciniosa Naud*) etc.

13 folklore and traditional practises were collected during the reporting period. These claims are used in the treatment of many common ailments like tumours in the stomach, ulcers, insect bite arthritis, leucorrhoea and also for contraceptive and diuretic effects.

Medicinal Plants Garden

The CRI(S), Madras is maintaining a small herb garden in the premises. One hundred and forty-six species of different medicinal plants of annual, bi-annuals, pernnials, climbers and trees are being maintained in the garden. 852.1 kg. of different parts of fresh crude drugs like *Nithyakalyani* (*Vinca rosea* L.), *Kozhi* avarai (*Cassia alata* L.), *Vet palai* (*Wrightia tintoria* R.Br.), Neeradi muthu (*Hydrocarpus venenate* Geartn), Nila kumizh (*Cmelina asiatica*) etc. were supplied to the pharmacy, chemistry and In-patient Deptt. of the Institute and also supplied to R.R.I. (DR), Trivandrum and R.R.C. (Ay), Bangalore. About 20 plants were introduced in the garden during the period under review.

Herbarium and Museum

The CRI(S), Madras is maintaing a Herbarum and Museum for Siddha Medicine. There are 151 herbarium specimens. 180 crude drug samples in plastic containers/glass jars were maintained in the museum. Efforts were also made to acquire 20 acres of land at Mettur for the establishment of Central Medicinal Plants Garden.

PHARMACOGNOSTIC RESEARCH PROGRAMME

Pharmacognosy Research Unit functioning under Siddha System of Medicine have carried out and completed pharmacognostic investigation on the following four drugs:—

1. **Kozhi Avarai** (*Canavalia virosa* W, & A) : Stem and leaf
2. **Poduthalai** (*Lippia nodiflora* Mich) : Leaf and Stem
3. **Vetpalai** (*Wrightia tinotoria* R.Br.) : Leaf and Stem
4. **Mukkirattai** (*Boerhaavia diffusa* (Linn : Root and Leaf

The study includes macro and microscopic characters (both qualitative and quantitative), extractive values inorganic qualitative test and preliminary phytochemical screening for the presence of different group of chemical compounds besides reporting of regional names, distribution, description and medicinal uses of the drugs studied.

CHEMICAL RESEARCH PROGRAMME

Chemical Research studies were carried out by the chemistry wing of the Drug Research Scheme (MD), Madras. The leaves of Kozhi avarai (*Canavalia virosa* Roxb.), whole plant of Tara and whole plant of Poduthalai (*Lippia nodiflora* Rich) were studied during the reporting period. A brief review of work done is reported here under :—

1. Kozhi avarai (*Canavalia virosa* Roxb.)

Leaves are important in the treatment of Manjal kamalai (Infective hepatitis). The qualitative analysis revealed the presence of sulphate, phosphate, chloride, carbonate, potassium, sodium, iron and calcium.

2. Tara

Whole plant is used in Leucoderna. The qualitative analysis revealed the presence of carbonate, chloride, sulphate phosphate, iron, calcium and sodium. Colour test for organic compounds present in the whole plant were done. Hexane, benzen and chlorform cxtracts revealed the presence of triterpene, quinone and tannin.

3. Poduthalai (*Lippia nodiflora* Roxb.)

Whole plant is used as diuretic, febrifuge and also has cooling properties. Alcoholic extract of the leaves showed presence of tannin, fat, rutin, a waxy ester and β-sitosterol. The qulitative analysis revealed the presence of potasium, phosphate, chlorine, sulphate, carbonate, iron and calcium.

PHARMACOLOGICAL RESEARCH PROGRAMME

The Pharmacological research studies are carried out to identify the drug potential/action of Siddha preparations. The studies on a number of single drugs and their various fractions/extracts have been carried out. Pharmacological research studies were conducted by the Pharmacology Section of Central Research Institute (Siddha), Madras and Drug Research Scheme (Multi Disciplinary), Madras.

During the reporting period eight drugs were studied details of which are reported hereunder :—

1. Chundai vatral choornam—Acute toxicity study

The drug Chundai vatral choornam was suspended in buttermilk and administered in the doses of 50, 100, 250, 500, 10000, 2000, 3000 and 4000 mg./kg. body weight to the albino mice. One group received vehicle (buttermilk) and served as untreated control. The animals were observed for 72 hours for any toxic manifestations. The drug did not show any toxic effects in any of the above doses. The study with higher doses is in progress.

2. Pavala param

(a) Acute toxicity study—mice

The drug was suspended in honey and administered in the doses of 50, 100, 250, 500, 1000, 2000, 3000 and 5000 mg./kg. body weight to albino mice. One group received vehicle (honey) and served as untreated control. The animals were observed for 72 hours for toxic manifestations. The groups which received 3000 and 5000 mg. per kg. body weight showed depression (+). However, there was no other toxic symptom and mortality in the doses employed. The study with higher doses is in progress.

(b) Acute toxicity study—rats

The drug was suspended in honey and administered in the doses of 50, 100, 250, 500 and 1000 mg./kg. body weight to albino rats which were deprived of diet for 18 hours. One group received vehicle (honey) and served as untreated control. The animals were observed for 72 hours for any toxic manifestations. The drug did not show toxic effects in any of the above doses. The study with higher doses is in progress.

3. Sivanaramirtham—mice

(a) Acute toxicity study

The drug was suspended in honey and administered in the doses of 50,100 and 200 mg./kg. body weight to albino mice. One group received the vehicle and served as an untreated control. The animals were observed for toxic manifestations for 72 hours. The drug did not show any toxic effects in any of the doses employed. The study with higher doses is in progress.

(b) Acute toxicity study—rats

The drug was suspended in honey and administered in the doses of 50, 100, 200, 500, 1000 and 3000 mg./kg. body weight to albino rats. One group received vehicle (honey) and served as untreated control. The animals were observed for 72 hours for toxic manifestations. The drug did not show any toxic effects in any of the doses employed. The study with higher doses is in progress.

4. MAP—a coded anti-fertility drug

(a) Acute toxicity study

The drug was suspended in distilled water and administered in the doses of 100, 250, 500, 1000, 2000, 3000 and 5000 mg /kg. body weight. One group received vehicle (distilled water) and served as untreated control. The animals were observed for 72 hours for any toxic manifestations. The drug did not show toxic effects in any of the above doses. The study with higher doses is in progress.

(b) Anti-fertility study

The daily vaginal smears of female rats were examined after allowing to mate in the ratio of 1 : 3. The mated female animals

were grouped on observing clumps of sperms on their cycle and this day of mating was taken as D-1 of pregnancy. The drug was suspended in distilled water and administered in the dose level of 500 mg /kg. body weight daily from D-1 to D-5 of pregnancy. On D-10 of pregnancy, the animals were laparotomised and the number and nature of implants on both the horns of uterus were observed and recorded. One group received vehicle (distilled water) and served as untreated control. The animals were allowed for full term of their gestation period. The number of young ones delivered and presence of any teratogenic effect of the drug was observed on the day of delivery. The drug did not show any anti-implantation activity in the employed dose level. The study is in progress with higher doses.

5. Kandan kathiri pazha ennai

(a) Anti-inflammatory study : Carrageenin-induced paw odema study

The initial right hind paw volume was measured plethysmographically and recorded. The drug was administered in the doses of 2.5 and 15 ml /kg. weight to albino rats, after weighing the initial right hind paw volume. One group received vehicle (olive oil) and served as untreated control. The oedema was induced by injecting 0.1 ml. carrageenin suspended in carboxy-methyl cellulose in the plantar aponeurosis of right hind paw after one hour of drug administration. The final volume of right hind paw was measured after three hours of carrageenin injection. The difference between the final and initial readings were recorded. The data is being analysed.

(b) Analgesic study : Hot plate method

The drug was administered to albino rats in the doses of 10 and 15 ml./kg. body weight. One group received vehicle (olive oil) and served as untreated control. Another group received Analgin in the dose of 500 mg./kg. body weight and served as standard control. The heat response of each animal on hot plate was (maintained at $55 \pm 0.5°C$) recorded for every 30 minutes upto 180 minutes. The data is being analysed.

6. Vetpalai verpattai— Carrageenin induced paw odema study

The drug was administered in the doses of 50,100 and 200 mg./ kg. body weight of albino rats. One group received vehicle (Carboxy

methyl cellulose) and served as untreated control. The paw odema was induced by injecting 0.1 ml. carrageenin suspended in carboxy methyl cellulose in the plantar aponeurosis of right hind paw after one hour of drug administration. The final volume of right hind paw was measured after three hours of carrageenin injection. The difference between the final and initial volume of right hind paw was recorded. The data is being analysed.

7. LRD-an isolated drug—Formalin-induced arthritis study

The drug was administered in rhe dose level of 10 mg./kg. body weight. One group received vehicle (Carboxy methyl cellulose) and served as untreated control. Another group received prednisolone in the dose level of 10 mg. per kg. body weight which served as standard control. The arthritis was induced by injecting formalin in the plantar aponeurosis of right hind paw. The width of right hind paw joint was measured for 11 days and the body weight of the animal was also recorded. The data is being analysed.

8. Karunj cheeragam—Analgesic study

The drug was suspended in butter milk and administered in the doses of 100 and 250 mg./kg. body weight in albino mice. One group received vehicle (butter milk) and served as untreated control. Another group received analgin in the dose of 500 mg. per kg. body weight and served as standard control. The heat response of each animal on hot plate maintained at $55 \pm 0.5°C$ was recorded for every 30 minutes upto 180 minutes. The data is being analysed.

PHARMACEUTICAL/STANDARDISATION RESEARCH PROGRAMME

The Drug Standardisation Research plays an important role for obtaining drugs and medicinal preparations of quality for therapeutic purposes. Under this programme stardardisation studies on single drugs, process of manufacture of formulations and on the finished preparations/formulations such as Parpam, Chendooram, Thailam, Choornam, Nei, Laheyam, Karupu, Surasam, Manappagu etc. were taken up.

The Drug Standardisation Research Unit at Captain Srinisava Murthy Drug Research Institute for Ayurveda, Madras, Drug Standardisation Research Unit at Regional Research Institute (DR), Trivandrum and Drug Standardisation Research Unit at Regional Research Centre (Ay.), Bangalore are engaged in this programme.

Single drugs like Irattai peymirati, Uppilankodi, Arival mooku pachilai, Azhinjil were taken up for analytical studies. Besides this, units have also taken up the work of laying analytical standards for formulations included in the National Formulatory of Siddha Part-I. These units are also engaged in Pharmacognostical and Phytochemical studies of single drugs which enter into the formulations included in the Formulary.

The detaits of the drugs/formulations studied by the standardisation research projects during the reporting period are reported hereunder :—

(A) Analytical Standards (Single drugs)

1.	Irattai peymirati (*Anisomelcs malabarica* R. Br.)	Leaves	DSRUSM
2.	Uppilankodi (*Perlatropis microphylla* (W. & A.)	Whole plant	—do—
3.	Arival mookku pachilai (*Sida acuta* L.)	—do—	—do—
4.	Azhi njil (*Alamquim solvifolium*)	seed	—do—

(B) Analytical standards (Pharmacopoeial Standards)

1.	Appiraka parpam	DSRUSM
2.	Narpavla parpam	—do—
3.	Kalnar parpam	—do—
4.	Kanthi mezhugu	—do—
5.	Palagari parpam	DSRUSB
6.	Kuugilya parpam	—do—
7.	Kesari illekiyam	—do—
8.	Padikara parpam	DSRUST

(C) Pharmacognosy

Pharmacognostical identification of the following drugs were done during the reporting year :—

1.	Elumichan tulasi (*Ocimum gratissum* L.)	DSRUSM
2.	Irattai peymirati (*Arisomeles malabarica* R. Br.)	—do—
3.	Arival mooku pachilai (*Sida acuta* L.)	DSRUST
4.	Arakkirai (*Amaranthus tristis* L.)	DSRUSM
5.	Andimalli (*Mirobilis jalapa* L.)	—do—
6.	Alivirai (*Linum usitatilssium* L.)	—do—
7.	Nila vila (*Feronia limonia*)	DSRUSB
8.	Mahizhi (*Mimusops elangi* L.)	DSRUST
9.	Iyvirali (*Bryonia lacinlosa*)	—do—
10.	Atadam (*Capparig beylanica*)	—do—

Apart from this, following ingredients of Siddha preparations were tested and identified for the authenticity :—

1.	Ispagol (*Plautagoovata forsk*)	Seed	DSRUSM
2.	Siruthekku (*Clerodendrum serratum* Moon)	Stem	—do—
3.	Iththi pattai (*Ficus sp.*)	Stem bark	—do—
4.	Nochi (*Vitex negundo* L.)	Leaves and leaf juice	—do—

5.	Oman (*Trachysperm rihi Sprangue*)	Seed	DSRUSM
6.	Perum jeeragam (*Pimpinolla*) *amisum* L.)	Seed	—do—
7.	Ilingam (Red sulphate of mercury)	Purified	– do—
8.	Arivalmookku pachilai (*Sida actual L.*)	Whole plant	—do –
9.	Thakkolan (*Illicium verum* Hook *F.*)	Flower	—do—
10.	Uppilam kodi (*Pentatropis microphlla* W & A)	Whole plant	—do—
11.	Karagil (*Aquilaria aqalloch* Roxb)	Stem	—do—
12.	Irttai peymirati (*Anisomeles malabrica* R. Br.)	Leaves	—do—

Further DSRUS, Madras has collected and identified the following drugs for phytochemical studies :—

1. Kattrazhai (*Aloe barbadenis* Mill.)
2. Anai kattrazhai (*Agava americana* L)
3. Anai kundrimani (*Adenanthera pavonina* L.)
4. Peythumati (*Citrullus colocythis* schrad & Wenole.)

The DSRUS, Trivandrum has analysed 31 samples of 21 single drugs which are used in Siddha preparations. Thin layer chromatography (T.L.C.) was done on 37 samples of different extracts of single drugs used in Siddha medicinal preparations.

LITERARY RESEARCH PROGRAMME

The Literary Research and Documentation Department (Siddha), Madras has taken up the following work during the period under review.

The Department has completed the annotation work of remaining 454 stanzas of Agasthiya Vaidhya Kaviyam-1200 which was taken up in the last year. Further 510 stanzas were corrected during the reporting period. The work deals with fundamentals of Siddha Medicine, simple and compound formulations used by Siddha Physicians and also certain yogic practices related to Raja yogam/Siva yogam etc. The work of correction and editing is in progress.

Annotation work on Agasthiya Kalai Ganam-1200 has been taken up and 50 stanzas were annotated. The fundamental principles and also some formulations for ailments were found in the first 50 stanzas.

Apart from this, the Department has published the Technical Report of Central Research Institute (Siddha) Madras for a period of 12 years from 1975-1987. Abstracts of papers for the work shop on Kalanjaga padai (Psoriasis) and Notes on Disease of National Importance—A collection from Siddha Literature were released during the Workshop on Kalanjaga padai (Psoriasis). A study group meeting of Experts of Siddha to discuss the management of diseases of national importance was held in Madras on 7th to 10th November, 1987.

The Department has collected Rs. 5,405.60 by sales of the Council's publications.

PUBLICATIONS/PARTICIPATIONS

Sl. No.	Name of Author(S)	Title of the Paper	Name of the Conference/ Seminar/ workshop	Date of participation
1	2	3	4	5
1.	Kalavathi, K. Rao, Ponnaiya chemy, G., Sivanandam, G., Veluchemy, G.	Associated medical problems in Psoriasis-an analysis based on laboratory/clinical parameters.	Ist Siddha Scientific Conference, Trivandrum.	June, 1987
2.	Raja Lakshmi, S , Kalavathi, K. Rao, Krishna moorthi, J.R., Veluchemy, G.	Siddha aspects of psoriasis special focus on follow-up study on Kalanjaga padai (Psoriasis).	Workshop on Kalanjaga padai (Psoriasis).	7th and 8th Nov., '87
3.	Ganapathi raman, K., Annathai, J., Subbulnkshmi V., Subramanian C., Tiru Navakkarasu, S.	Treatment aspect of Siddha System of Medicine for Kalanjaga padai.	Workshop on Kalanjaga padai (Psoriasis).	7th and 8th Nov., '87
4	Narayanappa, D., Natarajan Mohan, V., Veluchamy, G.	Histo-morphological studies on vet palai (*Wrightia tinctoria* R. Br.).	Workshop on Kalanjaga padai (Psoriasis) Madras.	7th and 8th Nov., '87

Contd.

1	2	3	4	5
5.	Appara-nanthen, T., Subramanian, M.P.S., Subramanian, V.	Ethno-Medico-Botanical glimpses of Psoriasis.	Workshop on Kalanjaga padai (Psoriasis).	7th and 8th Nov., 87
6.	Appara-nanthan, T., Subramanian-M.P.S., Subramanian, V.	Medical Ethno-Botanical glimpses of Eraippu Erual (Bronchial Asthma).	Ist Siddha Scientific Conference, Trivandrum	5th and 6th June, 87
7.	Ghosh, D.	Anti-inflammatory, analgesic and toxicity profile of 777 oil from *Wrightia tinctoria* R. Br. Siddha Medicine.	Workshop on Kalanjaga padai (Psoriasis).	7th and 8th Nov., 1987
8.	Appara-nanthan, T., Subramanian, M.P.S., Subramanian, V.	Medicinal plants used in kollimalai.	Journal of Vivkananda Kendra publication Madras.	1987

WORKSHOPS/SEMINARS/SYMPOSIA/ CONFERENCES/EXHIBITIONS

(A) Worshops/Seminars/Conferences

1. Convention of Ancient Ayurvedic Physicians on the Diseases of National Importance

A convention of Ayurvedic Physicians to discuss effective remedies for diseases of National importance i.e. Leprosy, Cancer, AIDS, Liver disorders, Diabetes, Tuberculosis and diseases due to malnutrition was held on 3-4 August, 1987 at India International Centre, Lodhi Estate, New Delhi. The inaugural function was presided by Vd. B.D. Triguna, President, All India Ayurveda Maha Sammalan New Delhi. The convention was attended by a number of distinguished Physicians of Ayurveda from different parts of the country. A monograph entitled "Study of Health Statistics under Mobile Clinical Research Programme Ayurveda" and a booklet entitled "Achievement and Activities" of the CCRAS were released during this convention.

2. Workshop on Science and Technology

Regional Research Centre (Ayud.), Gangtok (Sikkim) participated in the workshop on Science and Technology inputs for socio-economic Development of Sikkim organised by Sikkim Science Society on 24th and 25th August, 87.

3. Inauguration of Out Patient Department at Centra Research Institute (Ayud.), Bombay

Vd. Pt. Haridatta Shastri, Ex-Director Ayurveda, Maharashtra inaugurated the Out Patient Department of the Central Research Institute (Ayurveda), Bombay on 2nd Oct., 1987 (Gandhi Jayanti day). This function was presided by Prof. A.N. Namjoshi, former Education Minister of Maharashtra State.

4. Work Shop on Kalanjaga padai (Psoriasis)

A work shop on Kalanjaga padai (Psoriasis) was conducted at Madras, during 7th and 8th November, 1987. Thiru, P.U. Shanmagam, Minister for Health and Family Welfare, Goverment of Tamil Nadu inaugurated the work shop. The function was presided by Thiru Dr. Valampuri Jhon, Member of Parliament.

An abstract of 21 Scientific papers covering various aspects of Kalanjaga padai (Psoriasis) was released during the occasion. A book entitled "Clinical and Experimental studies on the efficacy of 777 oil a siddha preparation in the treatment of Kalanjaga padai (Psoriasis)" published by the Council was released on the occasion by Thiru Dr. Valampuri Jhon, Member of Parliament. 150 Scientists of different disciplines belonging to Siddha, Ayurveda, Allopathy and Paraclinical subjects attended the work shop.

5. Study Group Meeting on the role of Siddha in the Management of Diseases of National Importance

A study group meeting on the role of experts of Siddha in the management of diseases of National Importances was held on 9th and 10th November, 1987. Muthamazhi Kavalar K.A.P. Viswanathan Chairman, Siddha Science Development Committee, Government of Tamil Nadu, inaugurated the function. Dr. M.V. Ramanan, Retd. Chief Physician, Gujarat Ayurveda University, Jamnagar presided over the function.

During the delebrations of the meeting, the diseases like leprosy, Leucoderma, AIDS, Cancer, Tuberculosis, Blindness, Malnutrition and Liver disorders were discussed with special reference to the receipes available in Siddha literature and those followed by practitioners for the treatment of above clinical conditions effectively.

Dr. A. Ananda Kumar, Dr. J.R. Krishnamoorthy, Dr. C.S. Uthamaroyan, Dr. R. Thyagarajan, all from Madras; Dr. P. Kesavapillai, Tirunelveli, Dr. R. Kannan, Tiruchy are among the eminent physicians who attended the meeting.

6. Silver Jubilee Celebration of Captain Srinivas Murthy Drug Research Institute for Ayurveda, Madras

The Council celebrated Silver Jubilee function of Captain Srinivas Murthy Drug Research Institute for Ayurveda, Madras on 13th November, 1987 at Hotelchola Sheraton, Madras.

Shri Thira V.R. Nedunchezhiyan Finance Minister of the Government of Tamil Nadu unveiled the portrait of Captain Srinivas Murthy and inaugurated the celebration.

A Scientific Seminar on Standardisation of Ayurveda and Siddha Preparations vis a-vis Phyto-chemical Investigations was held on 13th and 14th November, 1987 on this occasion. The inaugural address of the seminar was read out by Vaidya S.K. Mishra, Adviser (ISMY&N) Ministry of Health and Family Welfare, Government of India on behalf of the Union Health Minister Shri P.V. Narasimha Rao. The keynote address of the seminar was delivered by Dr. K.N. Udupa, Emeritus Professor, Banaras Hindu University, Varanasi. Eminent Scientists, Physicians and Scholars from different parts of the country participated in the delibrations of the seminar. A total of 22 articles on different aspects of standardisation and Phytochemical investigations were read.

7. The Second Annual Meeting of the Senior Officers and Project Heads of CCRAS

The Second Annual Meeting of the Senior officers and Project Heads of CCRAS was held on 21st and 22nd March, 1988 at India International Centre, Lodhi Estate, New Delhi. The function was addressed by Miss Meera Seth, Additional Secretary and presided by Vaidya B D. Triguna, President, All India Ayurvedic Congress, New Delhi. The meeting was also addressed by Vd. Shivkaran Sharma Changani, Acharya Raghubir Parsad Trivedi, Prof. A.N. Namjoshi, Dr. Anand Kumar—all Governing Body members. Shri S.B. Goel, Director (ISM), Dr. S.K. Mishra, Advisor (ISMY&N) both from Ministry of Health and Family Welfare and Dr. V.N. Pandey, Director CCRAS also addressed the meeting.

The Monograph entitled "Management of Mutrasmari by three Ayurvedic Drugs i.e. Varuna, Kulatha and Goksuru" and another book entitled "Ashtangasangraha-Uttarsthana with Indutika" a critical edition were released by Miss Meera Seth, Additional Secretary, Ministry of Health and Family Welfare, Government of India. Some useful Guest lectures by distinguished Scientists on topics having bearing on the Research Programmes of the Council were delivered during the meeting on 21st March, 88. On 22nd the meeting was held in four different groups one each for Clinical Research including Health Care Research Programme, Drug Research Programme, Family Welfare Research Programme

and Literary Research Programme. These groups discussed at length about the outcome of the work and about the difficulties being faced in completing the allotted work targets. Each group made specific recommendations for effective implementation of the allotted programmes. At the end of the meeting of these four groups, Director heard the views of the senior officers for streamlining the working of their Institutes/Centres/Units.

(B) Exhibitions

1. An exhibition of medicinal plants was arranged by Jawahar Lal Nehru Ayurvedic Medicinal Plants Garden and Herbarium, Pune in its campus during 13th Annual Conference of Pharmacologists of Maharashtra held at Pune on 22nd August 1987.

2. Regional Research Institute (Ayud.), Patna arranged an exhibition on the useful medicinal plants of Bihar during workshop on medicinal plants held at Patna on 17th Oct. 1987 organised by Central Government and Bihar State Government.

3. The Council arranged an exhibition of regional medicinal herbs during 43rd Uttar Pradesh Ayurveda Sammelan held at Dehradun on 1-2nd November, 1987.

4. An exhibition was arranged by Central Research Institute Siddha, Madras during the workshop on Kalanjaga padai (Psoriasis) held on 7th & 8th November, 1987.

5. An exhibition was arranged by Captain Srinivas Murthy Drug Research Institute for Ayurveda, Madras during the Silver Jubilee Celebrations and Scientific Seminar held on 13th and 14th November, 1987.

6. Regional Research Institute (Ayud.), Patna arranged an exhibition on medicinal plants from 28th December, 1987 to 30th December, 1987 during 10th Botanical Conference.

7. The Council participated in the Janapada Ayurveda Mahasammelan, Bulandshahar held on 3rd January, 1988.

8. The Council participated and arranged an exhibition of medicinal plants and Council's publications during 25th Divisional Conference of National Integrated Medicinal Association held at Aligarh on 30th and 31st January, 1988.

9. The Council participated and arranged an exhibition on the occasion of Golden Jubilee of the Janapada Ayurveda Sammelan, Aligarh celebrated on 1st February, 1988.

10. The Council participated and arranged an exhibition of Medicinal plants and publications of the Council during First World congress on Clinical Nutrition held in New Delhi from 27th February, 1988 to 3rd March, 1988.

11. The Council arranged an exhibition at Pragati Maidan New Delhi during "The Indian International Health-Care Pharmaceutical and Laboratory Equipment Exhibition and Conference" held from 23rd to 25th March, 1988.

ACKNOWLEDGEMENT

The Directorate of the Council places on record its deep appreciation for the services rendered by the members of the Governing Body, Finance Committee and Scientific Advisory Committees. The valuable assistance, guidance and continued support given by them to the Council in the conduct of its work is acknowledged with gratitute.

The Directorate of the Council also places on record its gratitude and deep sense of appreciation to Scientists and Scholars of various disciplines of medical system and other ancillary Sciences, Universities and Governmental agencies who are directly or indirectly associated with this Council and officials of all the research projects including the Headquarters Office for their co-operation in implementing the various programmes undertaken during the period under report.

The Council avails this opportunity to convey its profound thanks to Government of India, Ministry of Health and Family Welfare for their continuous support, helpful attitude and co-operation which enabled the Central Council to pursue its activities in the field of research and hopes to receive their continued support and co-operation in future also for the over all development of Ayurveda and Siddha.

The Council places on record the efforts of Shri R.K. Singhal, S.S.A. (Stat.) for bringing out the Annual Report in the present form.