

Central Council for Research in Ayurveda & Siddha

MINISTRY OF HEALTH & FAMILY WELFARE
(GOVERNMENT OF INDIA)

(12)



**CENTRAL COUNCIL FOR RESEARCH
IN AYURVEDA AND SIDDHA**

**ANNUAL REPORT
1985-86**



**(AN AUTONOMOUS BODY UNDER)
MINISTRY OF HEALTH AND FAMILY WELFARE
(Government of India)
NEW DELHI**

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PREFACE

The Central Council for Research in Ayurveda and Siddha which is the apex body in India for the formulation, co-ordination and promotion of research on scientific lines in Ayurveda and Siddha discharges its function through the Research Institutes and Centres functioning under its direct control and through a number of Units/Enquiries located in various Institutions in different parts of the country such as Universities, Ayurvedic/Siddha and Modern Medical Colleges. During the period under review the Council carried out research studies covering the areas of Clinical Research, Health Care Research including Tribal Health Care Research, Drug Research, Literary Research and Research on Screening of Herbal Contraceptives. The Projects and Programme in the field of Health Care Research coincide with the new 20 point programmes of the Government so that the benefits of research reach to the economically backward and tribal population of the country.

Clinical Research

Clinical programmes have been drawn keeping in view the national priorities so that the research work carried out can meet national needs and priorities. Clinical conditions studied in Ayurveda include *Amavata* (Rheumatoid arthritis), *Sandhigatavata* (Osteo arthritis), *Pakshaghata/Pakshavadha* (Hemiplegia), *Gridhrasi* (Sciatica), *Khanja* and *Pangu* (Monoplegia and Paraplegia), *Saisaveeyavata* (Poliomyelitis), *Amlapitta* (Hyperacidity), *Parinama sula* (Duodenal ulcer), *Grahani roga* (Malabsorption syndrome), *Krimi roga* (Parasitic infestation), *Tamak swasa* (Bronchial asthma), *Rakta pradara* (Metroorrhagia), *Sweta pardara* (Leucorrhoea), *Kastartava* (Dysmenorrhoea), *Switra* (Vitiligo), *Pama* (Scabies), *Vicharchika* (Oozing echzema),

Psoriasis, *Madhumeha* (Diabetes mellitus), *Mutra kricchra* (Dysurea), *Slipada* (Filariasis), *Visham jwara* (Malaria), *Unmada* (Schizophrenia) and *Arbuda* (Cancer). In addition clinical conditions like *Vallgunmam* (Peptic ulcer), *Putrunoi* (Cancer), *Manjal kamalai* (Infective hepatitis), *Sandhi vatha soolai* (Rheumatoid arthritis), *Kalanjaga pedai* (Psoriasis), *Vellainoi* (Leucorrhoea), *Gunmam* (Gastro-intestinal disorders), *Velluppunoi* (Anaemia), *Kakkai valippu* (Epilepsy) *Kazhichal* (digestive disorders), *Venkuttam* (Leucoderma), *Neerazhivu* (Diabetes mellitus), *Oothal noi* (Acites), *Karappan noi* (Skin diseases), were studied under Siddha System of Medicine. During the execution of this programme, medical aid to 3,60,774 patients (1,39,442 new and 2,21,332 old) through the Out Patient Departments and 3,403 patients through the Indoor Patient Departments functioning at different Institutes/Centres of the Council have been provided.

Health Care Research Programme

The Council has been carrying out the Research Oriented Survey and Surveillance Programme, Community Health Care Research Programme and Tribal Health Care Programme under this programme. These programmes envisage closer scope not only to understand the local health problems and inter-dependant issues but also to identify and apply/advise the methods and measures suitable to surmount them. The teams working in these programmes maintain close contact with the rural folk and try to educate and acquaint them about the preventive measures to be adopted for healthful living and about herbs locally available together with their uses so that many of the common ailments can be treated by the locally available resources. During the period under review about 100 villages including 35 tribal pockets, consisting of a population of about 95,000 individuals were covered under these programmes and incidental medical-aid provided to more than 25,000 patients.

Drug Research

The Council has been carrying out Medico-Botanical Survey,

Cultivation of Medicinal Plants, inter-disciplinary Research Programmes such as Pharmacognostical, Chemical and Pharmacological studies and also studies relating to working out of standards for the Ayurvedic formulations included in the Formulary published by the Ministry of Health and Family Welfare, Government of India. Under Medico-Botanical Survey 40 forest areas have been covered and 6751 herbarium specimens were added to the Herbarium in addition to the 371 herbarium specimens added to the Museum. During the course of Survey drug samples have also been collected for supply besides the collection of about 430 folklore claims. About 300 medicinal species have been taken for experimental and large scale cultivation. Pharmacognostical studies of 15 drugs, chemical studies of 27 drugs and Pharmacological Studies of about 31 drugs used in Ayurveda and Siddha System of Medicine have been carried out. Under standardisation studies, studies on single drugs, process of manufacture of formulations and finished formulations besides some other ancillary studies like shelf life, estimation and role of preservatives have been carried out.

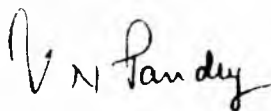
Literary Research

The work carried out under this programme include Medico-historical studies, collection of subject wise references from ancient classical literature, published literature in Ayurveda, Siddha and Modern Medicine besides the revival and publication of ancient literature, publication of *Sahasra Yoga* in Sanskrit and Hindi and critical edition of *Ashtanga Sangraha* is in the process of printing. The Council has also been bringing out quarterly "Journal of Research in Ayurveda and Siddha," "Bulletin of Medico-Ethno Botanical Research," "Bulletin of Indian Institute of History of Medicine" and a monthly/bimonthly News letter.

Family Welfare Research Programme

The Council has been pursuing Clinical Screening and Chemico-pharmacological studies of oral contraceptive agents. During the

period under report clinical studies on AYUSH AC-IV, K-capsule, J-capsule, *Pippalayadi yoga Vandhyavari (Vicoa indica)* and Roki-a claim, have been carried out. Chemico-pharmacological studies of *Palasha*, *Aristhaka* and *Apamarga* have been continued further.



(V.N. PANDEY)
DIRECTOR

Dated 6.10. 1986

ADMINISTRATIVE REPORT

ADMINISTRATIVE REPORT

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, 1986, the membership of the Society and Governing Body of the Council were as under :—

MEMBERS OF THE C.C.R.A.S. SOCIETY AND GOVERNING BODY

1. President : Smt. Mohsina Kidwai,
Union Minister of Health and Family Welfare.
2. Vice President : Shri Yogendra Makwana,
Union Minister of State for Health and Family Welfare
- 3-5. Official Members :
 1. Smt. Serla Grewal,
Secretary, Union Ministry of Health and Family Welfare (upto 28-9-85)
Shri S.S. Dhanoa,
Secretary, Union Ministry of Health and Family Welfare (w.e.f. 29-9-85)
 2. Shri S.K. Alok,
Joint Secretary, Incharge of I.S.M., Union Ministry of Health and Family Welfare
 3. Shri R.M. Bhargava,
Joint Secretary (F.A.), Union Ministry of Health and Family Welfare

- 6-16. Non-Official Members :
1. Prof. V.J. Thakar
 2. Prof. P.V. Sharma
 3. Dr. S.T. Gujar
 4. Vd. B.D. Triguna
 5. Vd. K.S. Warriar
 6. Vd. Nanak Chand Sharma
 7. Dr. Akhtar Hussain
 8. Dr. N.K. Bhide
 9. Dr. S.S. Gothoskar
 10. Dr. V. Subramanian
 11. Dr. J.R. Krishnamurthy
17. Director,
National Institute of
Ayurveda, Jaipur. Dr. Swamy Ram Prakash
18. Director,
National Institute of
Siddha/CRI (Siddha). Vacant
19. Member-Secretary : Vd. S.K. Mishra

During the period under report the Governing Body met once on 16th October, 1985 and decided among others the following important matters :—

1. The President observed that the cultivation of *Guggulu* should be undertaken with active collaboration of I.C.A.R. and Integrated Rural Development Projects.
2. Approved in principle the draft schemes for grant of promotion to Scientific/Technical Officers and staff as recommended by Finance Committee subject to the condition that the terms and conditions and gradation may be looked into by J.S. (I.S.M.) and J.S. (F.A.) and the scheme submitted to President of the Council for final approval.
3. Directed that the review of the on going programmes should be completed immediately and reports made available by 25th November, 1985.
4. Approved an independent transformer for I.I.K., Patiala at the cost of Rs. 80,000/-

5. Approved purchase of three-wheeler diesel scooter, one each for I.I.P., Cheruthuruthy, I.I.K., Patiala and C.R.I., Bhubaneshwar.
6. Approved the revised estimates of Rs. 5,66,84 1/- for certain capital works at JNAMPG & H, Pune.
7. Approved creation of following posts for the Central Herbarium and Museum, New Delhi.

1. Herbarium Assistant	Rs. 330-560	One
2. Mounter	Rs. 210-270	One
8. Approved three grant-in-aid enquiries under Ayurveda to be undertaken at B.H.U., Varanasi and Kasturba Medical College, Manipur for a period of three years together with the staff and expenditure pattern thereof and directed that the working of such enquiries should be reviewed periodically for evaluation.
9. Approved the extension of tenure of grant-in-aid enquiry on cancer Research at Amala Cancer Hospital and Research Centre, Trichur (Kerala) for a period upto 25-3-86 with the expenditure ceiling limited to Rs. 1.50 lakhs.
10. Authorised the Director to permit the Officer-in-Charge of Tribal Health Care Research Project, Car Nicobar for availing the I.A.F./Navy Air Travel facilities from Car Nicobar to Port Blair and back.
11. Approved the Pension Rules in principle and directed that it may be implemented with the approval of the Ministry of Health and Family Welfare.
12. Approved the publication of *Ashtanga Sangraha* and *Sahasrayoga* at an estimated expenditure of Rs. 1.50 lakhs subject to observance of the codal formalities.
13. Approved the creation of three posts of Chowkidar (Guards) in the scale of pay of Rs 196-232 with licenced fire arms for the Amalgamated Unit, Tarikhet for its musk deer programme.

14. Approved the proposal for holding the Silver Jubilee Celebrations of JNAMPG & H, Pune at an estimated expenditure of Rs. 50,000/-.
15. Approved the establishment of a time-bound grant-in-aid enquiry under Siddha at the Government College of Siddha, Palayamkottai alongwith the staff and expenditure pattern, for a period of two years.
16. Approved the condemnation of the five unserviceable vehicles of the Council's research projects at Cheruthuruthy, Varanasi, Jaipur, Bhubaneshwar and Bangalore. Replacements may be made subject to availability of funds.
17. Approved the creation of a post of Hindi Officer in the scale of pay of Rs. 650-1,200 in the Headquarters Office of the Council.
18. Approved the guidelines for grant of permission to the Scientists/Research workers to attend the Scientific Conferences and other assignments in India and abroad.
19. Approved the proposal to remit the case regarding enhancement of rent in respect of Building No, S-10, Green Park Extension Market, New Delhi occupied by the Headquarters Office, to the Arbitrator in terms of the lease agreement.
20. Ratified the adoption of Council's Annual Report and Audited Statement of Accounts for the year 1983-84 by circulation.
21. Approved in principle the 7th five year plan proposals as drafted by the Council and submitted to the Ministry of Health.
22. Approved the grant-in-aid Research Scheme on antifertility agents under Prof. Asima Chatterjee, M.P. for a period of three years alongwith the staff and expenditure pattern.
23. Approved the preliminary architectural plans for construction of Office building for the Headquarters Office of Research Councils at an estimated cost of Rs. 2.5 crores and directed the directorate to take further necessary action.

24. The President of the Council was requested to decide the issue of merger of RRI (Ay.) with that of N.I.A., Jaipur.
25. Approved in principle the proposal for enhancement of retirement age of Scientific and Technical personnel from 58 to 60 years under the Council subject to the condition that the categories of staff to be covered under this scheme would be decided by the Additional Secretary in the Ministry and the date from which this will become effective, notified thereafter.
26. Authorised the Director, to make necessary editorial changes in the recruitment rules for bringing uniformity and publish the approved recruitment rules.
27. Approved introduction of a provision in the recruitment rules for giving the benefit of added years of service to Scientists in the light of pension rules, subject to the condition that the list of categories of staff to be covered under this scheme should be scrutinised and finalised by Additional Secretary.
28. Approved the revised pattern of working of the Ayurvedic Research Unit, Bangalore alongwith the terms and conditions and directed to watch closely the revised arrangement for a period of two years so that future pattern of the Unit may be reviewed thereafter.
29. Adopted the resolution for extending the jurisdiction of Central Vigilance Commission to the employees of the Council and authorised the Director of the Council to nominate the Chief Vigilance Officer.
30. Approved the amendment to the Rule 46 (item 1) of the Rules and Regulations of the Council to read as "J.S. Incharge of I.S.M., Ministry of Health and Family Welfare or his nominee" instead of "Joint Secretary Incharge of I.S.M., Ministry of Health and Family Welfare."
31. Ratified the action taken in hiring a private building on a monthly rent of Rs. 7,671/- with 7,022.73 sq. ft. area for an initial period of five years with option to extend the same for a further period as per needs for accommodating the RRC (Ay.), Gangtok (Sikkim).

32. Ratified the action taken in hiring a private building on a monthly rent of Rs. 1,700/- with 2,000 sq. ft. area approximately for a period of five years for establishment of Clinical Research Unit (Siddha), Trivandrum.
33. Approved the enhancement of rent of building hired for RRC (Ay.), Jammu from Rs. 3500/- to Rs. 5,250/- per month w.e.f. 10-12-84 and also approved the enhancement of rent by 20% every five years if it becomes necessary to continue in the existing premises.
34. Agreed that status-quo may be maintained in case of the building No. D-5, Green Park, occupied by the Documentation and Publication Division of the Council.
35. Approved the following in respect of the building occupied by CRI (Ay.), Delhi :—
 - (i) To enhance rent w.e.f. 1-5-84 on the basis of assessment to be done by CPWD/Directorate of Estates.
 - (ii) To extend lease for a period of five years with option to extend it for a further period of five years.
 - (iii) To hire additional accommodation to the extent of 5,000 sq. ft. for Herbarium-Museum etc. subject to rent being assessed by the C.P.W.D./Directorate of Estates
36. Approved in principle the proposal for construction of RRI Complex in the land allotted at Salt Lake area and construction of a compound wall in the land at an estimated cost of Rs. 1.00 lakh through CPWD/State PWD.

Finance Committee

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

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

2. Deputy Secretary, : Shri R.K. Jindal
(Integrated Finance),
Ministry of Health and
Family Welfare
3. One Technical Member : Vd. B.D. Triguna
to represent Ayurveda
4. One Technical Member : Dr. V. Raghupati
to represent Siddha (expired on 31-7-85)
5. Director of the Council : Vd. S.K. Mishra

The Standing Finance Committee met thrice during the reporting period and dealt with various financial aspects of the affairs of the Council.

Representation of Scheduled Castes/Scheduled Tribes in 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 1543 employees and representation of SC/ST as on 1-1-86 is as under :—

Group	Total No. of employees	S.C.	Percentage of total employees	S.T.	Percentage of total employees
A (including lowest range of Class-I)	122	4	4.8	—	—
B	118	6	5.08	1	0.85
C	660	61	9.24	12	1.82
D	643	203	31.57	39	6.06
Total	1543	274	17.75	52	3.37

The Council is having seven Tribal Health Care Research Projects which have been specially located in tribal pockets. These programmes envisage a close 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, Family Welfare 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 twice on 24-4-85 and 29-11-85 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. Warriar : 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. Director, C.C.R.A.S. | : Member-Secretary |

The SAC (Ay.), met twice on 28-6-85 and 30-31.12.85, during the period under report and evaluated various research programmes/ schemes of the Council and provided necessary guidance.

Scientific Advisory Committee (Siddha)

- | | |
|---|--------------------|
| 1. Dr. V. Raghupati
(expired on 31.7.85) | : Chairman |
| 2. Dr. J. Krishnamurthy | : Member |
| 3. Dr. S. Ghoshal | : Member |
| 4. Dr. R. Subramanian | : Member |
| 5. Director, C.C.R.A.S | : Member-Secretary |

The SAC (Siddha) did not meet during the period under report.

Organisational Net-work of the Council

There are 11 Central/Regional Research Institutes, 10 Regional Research Centres, 36 Research Units, 5 Tribal Health Care Research Projects, one Documentation and Publication Division, 12 Family Welfare Research Units and one Research Project on Amchi System of Medicine besides two Research Institutes, 10 Research Units and two Tribal Health Care Research Projects in Siddha System of Medicine of which one Clinical Research Unit and two Tribal Health Care Research Projects were established during the period under report.

Budget Provision

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

Table

Scheme	Actual	Budget	Revised	Actual
	Expenditure	Estimates	Estimates	Expenditure
	1984-85	1985-86	1985-86	1985-86
	(Rs. in lakhs)			
Plan	204.36	75.00	54.24	45.58
Non-Plan	169.33	311.37	305.37	310.68
F.W.R.S.	8.64	5.00	11.05	9.99

Audited Statement of Accounts

The Accounts of the Council for the year 1985-86 were audited by the D.A.C.R. for the period from 1st April, 1985 to 31st March, 1986.

Special Events

1. The Government of West Bengal provided three acres of land at Sector-V of Salt Lake area, Calcutta free of cost for the construction of building complex for undertaking research activities in Ayurveda including RRI (Ay.), Calcutta under the Council.

2. A meeting of the Officers of the Tribal Projects and some Regional Research Centres of the Council functioning in remote areas was held at the Council's Headquarters Office on 20th May, 1985 in which it was emphasised that research in Ayurveda be given a suitable dimension consistent with local customs, beliefs and living conditions.

3. The Council participated in the Haryana State Ayurvedic Conference in which Dr M.R. Uniyal, Research Officer (Ay.), Central Research Institute (Ay.), New Delhi was conferred Honorary Degree of "Ayurveda Punarvasu".

4. A Seminar on "Biotechnology in Health Care" was held during the 37th Indian Pharmaceutical Congress from 26-28th December, 1985 at New Delhi which was attended by several officers of the Council and research papers on Indian Medicinal Plants were presented by them.

5. Dr. D. Ghosh, Research Officer (Pharmacology) Central Research Institute (Siddha), Madras has been awarded "B. Mukherjee Prize" (1984-85) for the best published paper on indigenous drugs entitled "Anti-inflammatory and analgesic activities of abanollic acid β -glucoside (RDG-1) from *Randia dumetorum*" by the Indian Pharmacological Society at its XVII Annual Conference held at Pondicherry in January, 1986.

TECHNICAL REPORT—AYURVEDA

Abbreviations used for Institutes/Centres/Units

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

24.	Dr. A. Lakshmi pati Research Unit in Indian Medicine, V.H.S. Madras.	ALURIM
25.	Ayurvedic Research Unit, NTMH&NS, Bangalore.	ARUB
26.	Clinical Research Unit (Ay.), Hyderabad	CRUH
27.	Clinical Research Unit (Ay.), Kottakkal	CRUK
28.	Clinical Research Unit (Ayurvedic and Modern Team under CDRS), Bombay.	CDRSB
29.	Clinical Research Unit(Ayurvedic and Modern Team under CDRS), Pune.	CDRSP
30.	Clinical Research Unit (Ayurvedic and Modern Team under CDRS), Varanasi.	CDRSV
31.	Dietetics Research Scheme, R. A. Podar Ayurvedic College, Bombay.	DRSB
32.	Panchakarma Research Scheme, R.A. Podar Ayurvedic College, Bombay.	PRSB
33.	Amalgamated Units, Tarikhet	AUT
34.	Captain Srinivasamurthy Drug Research Institute for Ayurveda, Madras.	CSMDRIA M
35.	Jawahar Lal Nehru Ayurvedic Medicinal Plants Garden, Herbarium and Museum, Pune.	JNAMPGHP
36.	Clinical Research Unit under FWRP, Ahmedabad.	CRUFA
37.	Clinical Research Unit under FWRP, Trivandrum.	CRUFT
38.	Clinical Research Unit under FWRP, Varanasi	CRUFV
39.	Clinical Research Unit under FWRP, Bombay	CRUFB
40.	Pharmacological Research Unit under FWRP, Jamnagar.	PhRUFJ
41.	Pharmacological Research Unit under FWRP, Varanasi.	PhRUFV
42.	Pharmacological Research Unit under FWRP, Bhubaneswar.	PhRUFB

43. Pharmacological Research Unit under FWRP, Trivandrum.	PhRUFT
44. Pharmacological Research Unit, Grant Medical College and Haffkine Institute, Bombay.	PhRUB
45. Pharmacological Research Unit, Calcutta	PhRUC
46. Pharmacological Research Unit, Lucknow	PhRUL
47. Pharmacological Research Unit, Varanasi	PhRUV
48. Pharmacological Research Unit, Jodhpur	PhRUJ
49. Pharmacological Research Unit, Gwalior	PhRUG
50. Pharmacological Research Unit, Trivandrum	PhRUT
51. Toxicity Research Unit, Grant Medical College, Bombay.	TRUB
52. Toxicity Research Unit, Jhansi	TRUJh
53. Chemical Research Unit, Calcutta	ChRUC
54. Chemical Research Unit, Varanasi	ChRUV
55. Chemical Research Unit, Hyderabad	ChRUH
56. Chemical Research Unit, Lucknow	ChRUL
57. Pharmacognosy Research Unit, Calcutta	PCRUC
58. Indian Institute of History of Medicine, Hyderabad.	IIHMH
59. Literary Research Unit, Thanjavur	LRUT
60. Documentation and Publication Division, New Delhi.	DPDD
61. Tribal Health Care Research Project (Ay.), Andaman Nicobar.	THCRPA
62. Tribal Health Care Research Project (Ay.), Ziro.	THCRPZ
63. Tribal Health Care Research Project (Ay.), Palamau.	THCRPP
64. Tribal Health Care Research Project (Ay.), Jhabua.	THCRPJ
65. Tribal Health Care Research Project (Ay.), Dhule.	THCRPD

- | | |
|---|--------|
| 66. Preliminary Drug Standardisation Research Unit, Jamnagar. | PSRUJ |
| 67. Preliminary Drug Standardisation Research Unit, Varanasi. | PSRUV |
| 68. Research Project in Amchi System of Medicine, Leh. | RPASML |
| 69. Amla Cancer Hospital, Trichur | ACHT |

CLINICAL RESEARCH

CLINICAL RESEARCH

The Clinical Research in Ayurveda under the Council consists of clinical therapeutic trials, evaluation of effect of single drugs and simple herbomineral preparations in selected clinical conditions, studies relating to fundamental aspects of Ayurveda and field studies regarding epidemiology and Health Care Services through Service-Oriented Survey and Surveillance Screening Programme, Community Health Care Research Programme and Tribal Health Care Research Programme. The present chapter deals with the work carried out under first two aspects. Clinical conditions studied during the reporting period include *Amavata* (Rheumatoid arthritis), *Sandhigatvata* (Osteo-arthritis), *Pakshaghata/Pakshavadha* (Hemiplegia), *Gridhrasi* (Sciatica), *Kanja and Pangu* (Monoplegia and Paraplegia), *Saisaveeyavata* (Poliomyelitis), *Amlapitta* (Hyperacidity), *Prinama sula* (Duodenal ulcer), *Annadravasula* (Gastric ulcer), *Grahani roga* (Malabsorption syndrome), *Krimi roga* (Parasitic infestation), *Tamak Swasa* (Bronchial asthma), *Rakta pradara* (Metrorrhagia), *Sweta pradara* (Leucorrhoea), *Kastartava* (Dysmenorrhoea), *Switra* (Vitiligo), *Pama* (Scabies), *Vicharchika* (Oozing eczema), *Psoriasis*, *Madhumeha* (Diabetes mellitus), *Mutrakricchra* (Dysuria), *Slipada* (Filariasis), *Vishma Jwara* (Malaria), *Unmada* (Schizophrenia) and *Arbuda* (Cancer).

A brief review of the studies conducted is provided hereunder. In each study mention is made about the Institutes/Centres/Units where the work is carried out together with the total number of cases of that particular clinical condition included into the study and results there of.

Amavata (Rheumatoid arthritis)

The clinical trials on *Amavata* (Rheumatoid arthritis) were conducted at the CRI, Delhi and Bhubaneswar, IIP, Cheruthuruthy,

IIK, Patiala, RRI, Calcutta, Junagadh, Patna and Gwalior and RCC, Itanagar. A total number of 282 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 (Rheumathoid arthritis) at a glance

S. No.	Therapy Centre	Instt/ cases	Total	Results					
				C.R.	Mark rel.	Mode rel.	Mild rel.	No LAMA/ rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Vatari guggulu Yoga- raja guggulu, Vishtinduka vati, Ras- nadi kwatha, and Amavatari rasa	CRID	14	—	2	1	9	2	—
2.	Sunthi, Suddha guggulu with Baluka sveda	CRIB	23	11	8	1	—	—	3
3.	Vachadi, Haridyadi and Vettumaran tablet	IIPC	50	9	9	2	2	3	25

C.R.—Complete Relief

LAMA—Left against medical advice.

Mark.—Marked

rel.—Relief

1	2	3	4	5	6	7	8	9	10
4.	Yograja guggulu, Rasna saptak kwatha, Patra pinda sweda	IIKP	94	2	5	31	31	4	21
5.	Nishindha guggulu	RRIC	19	--	5	3	5	3	3
6.	Amavatari rasa, Lepgutika and Baluka sweda	RRIJu	29	3	5	8	7	2	4
7. A.	Yogaraja guggulu, Sameer panaga rasa	RRIP	12	—	2	2	2	1	5
B.	Yogaraja guggulu Sameer panaga rasa, Saindhawadi taila	RRIP	13	—	2	2	4	—	5
8.	Sinhnad guggulu, Lahasunadi vati with local application of Mahanarayana taila and Baluka sweda	RRIG	8	—	—	—	2	2	4
9. A.	Nirgundi- yadi churna, Prasarini taila or Mahanarayana taila	RRCI	12	3	3	1	—	—	5
B.	Mahayograja guggulu, Maharasnadi kwath, Maha vishgarbha taila or Mahanarayana taila		8	1	3	1	2	—	1
Total			282	29	44	52	64	17	76

Sandhigatavata (Osteo-arthritis)

The clinical trials on *Sandhigatavata* (Osteo arthritis) were conducted at the RRI, Calcutta and Gwalior. A total number of 20 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

Result of clinical therapeutic trials of Ayurvedic preparations on *Sandhigatavata* (Osteo arthritis) at a glance

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C. R.	Mark. rel.	Mode. rel.	Mild No. rel.	LAMA/ Drop out	
1.	Rasna guggulu	RRIC	4	—	1	2	—	—	1
2.	Sinhanad guggulu, Lahasanadi vati with local application of Mahanarayan taila and Baluka sweda	RRIG	16	—	—	2	4	8	2
Total			20	—	1	4	4	8	3

Pakshaghata (Hemiplegia)

The clinical trials on *Pakshaghata/Pakshavadha* (Hemiplegia) were conducted at the CRI, Bhubaneshwar, IIP, Cheruthuruthy and IIK, Patiala. A total number of 136 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

**Result of clinical therapeutic trials of Ayurvedic preparations
on Pakshaghata/Pakshavadha (Hemiplegia) at a glance**

S. No.	Therapy	Instt/ Centre	Total cases	Results						
				C.R. rel.	Mark. rel.	Mode rel.	Mild rel.	No LAMA/ rel.	Dea- Drop th out	
1.	A. Hingu- triguna taila	CRIB	2	—	1	—	—	—	1	—
	B. Katuki guggulu		7	—	1	3	2	1	—	—
2.	A. Jatamamsi and Jyothishmati taila internally and externally	IIPC	26	—	1	1	3	11	9	1
	B. Jatamamsi and Jyothishmati taila internally		20	—	—	2	2	10	6	—
	C. Masha taila with Panchkarma therapy		14	—	1	2	4	3	4	—
	D. Masha taila internally and externally with Panchakarma therapy		26	—	—	2	7	6	10	1
3.	Yogaraja guggulu, Rasna saptak kwatha and Abhyanga sweda	IIKP	41	—	2	6	18	7	8	—
Total			136	—	6	16	36	38	38	2

Gridhrasi (Sciatica)

The clinical trials on *Gridhrasi* (Sciatica) were conducted at the CRI, Delhi and Bhubaneshwar, IIP, Cheruthuruthy and RRI, Calcutta. A total number of 36 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

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C. R.	Mark. rel.	Mod. rel.	Mild rel.	No LA via/ Drop out	
1.	Sudha bhallataka	CRID	10	5	—	3 (P.R.)*	—	2	—
2.	A. Hingutriguna taila	CRIB	5	1	3	1	—	—	—
	B. Eranda taila		3	1	—	—	—	1	1
3.	A. Samana with P.V. taila**	IIPC	6	3	1	1	1	—	—
	B. P.M. kwatha internally and P.V. taila externally		5	—	1	2	1	1	—
	C. Panchakarma with P.V. taila		2	2	—	—	—	—	—
	D. Samana and Panchakarma with P.V. taila		5	1	2	1	—	—	1
Total			36	13	7	8	2	4	2

*P.R.=Partial relief.

**P.V. taila=Prabhanjana vimardanam taila.

Khanja and Pangu (Monoplegia and Paraplegia)

The clinical trial on *Khanja* and *Pangu* was conducted at the IIP, Cheruthuruthy. A total number of 25 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 *Khanja* and *Pangu* (Monoplegia and Paraplegia) at a glance

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C.R.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	LAMA/ Drop out
1.	A. Samana with P.V. taila	IIPC	9	—	1	2	3	2	1
	B. P.M. kwatha internally and P.V. taila externally		5	—	1	—	2	1	1
	C. Panchakarma with P.V. taila		8	—	—	1	3	1	3
	D. Panchakarma and Samana with P.V. taila		3	—	—	—	1	—	2
Total			25	—	2	3	9	4	7

Saisaveeyavata (Poliomyelitis)

The clinical trial on *Saisaveeyavata* (Poliomyelitis) was conducted at the IIP, Cheruthuruthy. A total number of 23 cases have

P.V. taila = Prabhajana Vimardanam taila.

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

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mild rel.	No LAMA/ rel.	Drop out	
1.	A. Balaswagan- dadi taila internally and externally	IIPC	6	—	1	—	2	2	1
	B. P.M. kwatha internally and Balaswagandadi taila externally		5	—	—	1	2	—	2
	C. P.M. kwatha internally Balaswagandadi taila externally and Shashtikasali pinda sweda		3	—	—	2	1	—	—
	D. Balaswagandadi taila internally and externally and Shashtikasali pinda sweda		9	—	2	1	5	1	
Total			23	—	3	4	10	3	

During the reporting period 25 patients of *Pakshawadha* two patients each of *Ardita*, *Kampavata* and *Pungu* were included into the study of these disease conditions using *Panchkarma* techniques with supporting therapy. The results of these studies are as under : -

Table

S. Diseases No.	Results of treatment						
	Comp. rel.	Mark. rel.	Mo- de. rel.	Mild rel.	No rel.	LAMA	Total
1. Pakshawadha	—	—	5	13	3	4	25
2. Ardita	—	—	1	—	—	1	2
3. Kampavata	—	—	—	—	2	—	2
4. Pangu	—	—	1	—	1	—	2
Total	—	—	7	13	6	5	31

Besides this 82 patients had also undergone *Snehana/Swedan* as poorva karma, out of which four patients got moderate relief, 22 got mild relief and one patient had no relief, while 55 patients left the study against medical advice.

Amlapitta (Hyperacidity)

The clinical trials on *Amlapitta* (Hyperacidity) were conducted at the CRI, Delhi, IIK, Patiala, RRI, Junagadh, RRC, Mandi and CRU, Kottakkal. A total number of 98 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**

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C. R.	Mark. rel.	Mo- de. rel.	Mild rel.	No LAMA/ rel.	Drop out
1.	A. Shatavari	CRID	4	—	1	2	—	—	1
	B. Shatavari yoga		5	1	3	1	—	—	—
	C. Shatavari yoga and Sutsekhar rasa		8	—	6	—	—	1	1
2.	Narikela lavan	IKP	6	—	—	3	1	—	2
3.	Kamadudha rasa, Godanti bhasma, Shatavari churna, Guduchi churna	RRIJu	29	6	5	5	1	4	8
4.	Mahatik- taka ghrita	CRUK	1	1	—	—	—	—	—
5. A.	Suta sekhar rasa, Jaharmohra pishti	RRCM	37	4	10	5	10	7	1
B.	Avipattikar churna, Suta- sekhar rasa		8	—	—	—	3	—	5
Total			98	12	25	16	15	12	18

Parinama Sula (Duodenal ulcer)

The clinical trials on *Parinama sula* (Duodenal ulcer) were conducted at the CRI, Bhubaneshwar, RRC, Itanagar, RRI, Trivandrum, CRU, Kottakkal and CDRS, Bombay. A total number of 247 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 *Parinama sula* (Duodenal ulcer) at a glance

S. No.	Therapy Centre	Instt/ cases	Results						
			Total	C.R.	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Sutasekhar rasa, Kama-dudha rasa Dhatri lauha	CRIB	35	15	—	7 (P.R.)*	—	1	12
2. A.	Yastimadhu churna Kaparadika bhasma/ Varatika bhasma	RRCI	29	5	7	7	2	—	8
B.	Sutasekhar rasa, Dhatri lauha, Ayipatikar churna		18	3	7	3	4	—	1
3.	Nimbidin	RRIT	19	7	1	1	—	—	10
4. A.	Indukanta ghrita (Sodhan and Samana).	CRUK	32	28	—	4 (P.R.)	—	—	—

Table Contd.

*P.R. = Partial relief

1	2	3	4	5	6	7	8	9	10
B.	Indukanta ghrita (Samana)	16	9	—	4	—	3	—	
						(P.R.)			
C.	Māhatiktaka ghrita (Sodhan and Samana)	31	26	—	4	—	1	—	
						(P.R.)			
D.	Mahatiktaka ghrita (Samana)	19	18	—	1	—	—	—	
						(P.R.)			
E.	Glucose powder	30	—	—	—	—	30	—	
5.	Sutase- CDRSB khar rasa,	18	5	—	1	1	11	—	
						(P.R.)			
Total		247	116	15	32	7	46	31	

Annadrava sula (Gastric ulcer)

The clinical trials on *Annadrava sula* (Gastric ulcer) were conducted at the RRC, Itanagar and CRU, Kottakkal. A total number of 56 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 *Annadrava sula* (Gastric ulcer) at a glance

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/ Drop out	
1. A.	Yastimadhu churna, Kapardika bhasma, Vāratika bhasma.	RRCI	26	7	2	2	2	—	13

Table Contd.

1	2	3	4	5	6	7	8	9
B.	Sutasekhar rasa, Dhatri lauha, Avipattikar churna	5	1	1	2	1	—	—
2. A.	Indukanta CRUK ghrita (Sodhan and Samana)	5	5	—	—	—	—	—
B.	Indukanta ghrita (Samana)	7	2	—	3	—	2	—
					(P.R.)*			
C.	Maḥatiktaka ghrita (Sodhan and Samana)	1	1	—	—	—	—	—
D.	Mahatiktaka ghrita (Samana)	3	3	—	—	—	—	—
E.	Glucose powder	9	—	—	—	—	9	—
Total		56	19	3	7	3	11	13

Udarsula (Abdominal pain)

The clinical trials on *Udarsula* (Abdominal pain) was carried out at CRU, Hyderabad by Amasaya sodhan with the decoction of *Bilva patra*. Out of 120 cases included into this study, complete relief was observed in 21 cases, marked relief in five cases and moderate relief in two cases. Sixty cases got mild relief, while remaining 32 cases discontinued the study.

Pravahika (Dysentery)

The clinical trials on *Pravahika* (Dysentery) were conducted at the CRI, Delhi and CRU, Kottakkal. A total number of 19 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

*P.R. = Partial relief

results :—

Table

Results of clinical therapeutic trials of Ayurvedic preparations on *Pravahika* (Dysentery) at a glance

S. No.	Therapy	Instt/ Centre	Total cases.	Results					
				C.R.	Mark. rel.	Moder. rel.	Mild rel.	No rel.	LAMA/ Drop out
1.	Jatiphaladi churna or Avartani churna	CRID	16	7	4	1	—	2	2
2.	Dadimas-taka churna	CRUK	3	3	—	—	—	—	—
Total			19	10	4	1	—	2	2

Jeerna pravahika (Non-specific Mucous colitis)

The clinical trials on *Jeerna pravahika*, (Non-specific Mucous colitis) using *Panchamrit parpat* were conducted at IIC, Patiala and RRI, Patna. Out of the 18 cases studied at both the Institutes, complete relief was observed in one case, marked relief in two cases and moderate relief in three cases. Mild relief and no relief was observed in one case each while ten cases discontinued the study.

Grahani roga (Malabsorption syndrome)

The clinical trials on *Grahani roga* (Malabsorption syndrome) were conducted at the CRI, Delhi and Bhubaneswar. A total number of 29 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 *Grahani roga* (Malabsorption syndrome) at a glance

Sl. No.	Therapy	Instt/ Centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/ Drop out	
1.	Kutajadi vishesh yoga, Panchamrit parpati, chitrak-adi vati.	CRID	13	4	2	1	4	1	1
2.	Sunthi churna	CRIB	16	2	—	6 (P.R.)	—	—	8
Total			29	6	2	7	4	1	9

Besides this another study using *Bilwaphal majja churna* and *Jatiphaladi churna* was also undertaken at RRC, Hastinapur and 22 cases were included into the study.

Yakrit vridhi (Liver enlargement)

The clinical trial on *Yakrit vridhi* (Liver enlargement) using *Ksarpunkha bhasma*, *Arogyavardhini vati* with the decoction of *Varuna kwatha*, *Sighru kwatha* and *Sada bahar* was conducted at CRI, Delhi. Out of the 9 cases included into the study, complete relief, marked relief and mild relief was observed in two cases each, while moderate relief and no relief was observed in one case each and remaining one patient discontinued the study.

Kamla (Jaundice)

The clinical trials on *Kamla* (Jaundice) were conducted at RRI, Lucknow and CDRS, Bombay. A total number of six cases were included into the study. The treatment groups consisted of *Pynar-nava mandoor*, *Arogyavardhini*, *Kumariasaya* and *Guduchighan*. The number of cases were not adequate enough to draw any conclusion. The study is in progress.

Arsha (Piles)

The clinical trial on *Arsha* was conducted at IIK, Patiala. Out of the total 40 cases treated with *Arshari vati*, complete relief was observed in two cases, marked relief in three cases and moderate relief in six cases. Two cases got mild relief, while remaining 27 cases discontinued the study.

Krimi roga (Parasitic infestation)

The clinical trials on *Krimi roga* (Parasitic infestation) were conducted at the CRI, Bhubaneshwar, IIK, Patiala, RRI, Lucknow, Jaipur and Gwalior, RRC, Nagpur, Itanagar and Mandi. A total number of 236 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 of *Krimi roga* (Parasitic infestation) at a glance

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C.R. rel.	Märk. rel.	Mode. rel.	Mild ref.	No LAMA/ rel.	Drop out
1.	Kampillaka churna	CRIB	11	1	—	5 (P.R.)	—	—	5
2.	Kampillaka churna	IHKP	29	13	1	1	—	3	11
3.	Krimimudgar rasa, Bilva churna, Kutaj churna	RRIL	17	—	—	5	9	1	2
4.	Aralughan satva	RRIJ	34	6	5	—	4	2	17
5.	Krimimudgar rasa, Avipatkar churna, Mayur piccha bhasma, Guduchi satva, Varata bhasma and Vidangarishta	RRIG	42	6	2	3	8	2	21
6. A.	Kampillaka churna	RRCN	9	5	—	1	—	1	2
B.	Krimi mudgar rasa		5	3	—	—	—	—	2
7. A.	Palasa beej churna	RRCI	31	27	—	—	—	4	—
B.	Vidanga churna		17	12	—	—	—	5	—
C.	Krimimudgar rasa		6	3	—	—	—	3	—
8.	Kampillak churna	RRCM	35	—	13	—	4	—	18
Total			236	76	21	15	25	21	78

Tamak swasa (Bronchial asthma)

The clinical trials on *Tamak swasa* (Bronchial asthma) were conducted at the CRI, Delhi and Bhubaneshwar, IIP, Cheruthuruthy, IIK, Patiala, RRI, Lucknow, Junagadh, Patna and Gwalior, RRC, Itanagar, Vijayawada and Hastinapur. A total number of 512 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 *Tamak swasa* (Bronchial asthma) at a glance

S. No.	Therapy	Instt/ centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/ rel.	Drop out
1	2	3	4	5	6	7	8	9	10
1.	Krama- vardhman pippali	CRID	26	—	13	6	1	1	5
2.	Swasakuthar rasa, Sitopaladi churna, or Talisadi churna, vasavaleha, Kankasava	CRIB	22	1	—	15 (P.R.)	—	—	6
3.	Dasamoola- rishta, Kankasava, Dhanwantaram pill, and Vamana	IIPC	2	1	—	—	—	1	—
4.	A. Nardiya laxmi vilas rasa mishran	IIKP	23	—	6	2	1	7	7

Table Contd.

1	2	3	4	5	6	7	8	9	10
	B. Swasa kuthar rasa mishran		51	2	7	15	11	4	12
	C. IIKC-3		49	—	4	8	12	9	16
5.	Talisadi RRIL churna, Swasa kuthar rasa		7	—	1	3	—	—	3
6.	Kantakari RRIJu churna, Saindhav lavan		17	—	1	9	2	1	4
7.	A. Haridra RRIP khanda		23	—	3	8	5	2	5
	B. Haridra khanda and Sameer panaga rasa		119	—	16	28	25	13	37
8.	A. Vasa ghna PRIG		35	—	3	10	11	7	4
	B. Swasa kuthar rasa, Rasmanikya, Shring bhasma, Talisadi churna and Kanakasava		63	—	11	19	12	15	6
9.	A. Kantkari- RRCI yadi churna, Sitopaladi churna		22	6	5	2	2	—	7
	B. Swasa kuthar rasa, Kantakari avaleha, Talisadi churna		7	1	4	1	1	—	—
10.	Lasuna RRCV haridra compound		20	6	6	2	—	—	6
11.	A. Pippy- adi lauha		13	2	4	—	—	—	7
	B. Placebo		13	—	6	—	—	—	7
Total			512	19	90	128	83	60	132

Jeerna pratishyaya

The clinical trial on *Jeerna pratishyaya* was conducted at RRC, Vijayawada using *Rasamanikya* and *Chopchini churna*. Since only five cases were included into the study, no specific conclusions could be drawn. The study is in progress.

Rakta pradara (Metrorrhagia)

The clinical trials on *Rakta pradara* (Metrorrhagia) were conducted at the CRI, Delhi and IIK, Patiala. 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 *Rakta pradara* (Metrorrhagia) at a glance

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	LAMA/ Drop out
1.	A. Dhatriyadi churna	CRID	30	3	17	6	2	2	—
	B. Chandra kala rasa		2	—	—	2	—	—	—
2.	IIKC-2	IIKP	21	3	1	—	5	2	10
Total			53	6	18	8	7	4	10

Sweta pradara (Leucorrhoea)

The clinical trials on *Sweta pradara* (Leucorrhoea) were conducted at the CRI, Delhi and RRI, Junagadh. A total number of 37 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

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/ rel.	Drop out
1.	A. Kukkatanda twaka bhasma	CRID	11	4	1	2	4	—	—
	B. Pushyanuga churna		11	—	7	4	—	—	—
2.	Shatavari churna, Godanti bhasma	RRIJu	15	1	6	2	1	—	5
Total			37	5	14	8	5	—	5

Kastartava (Dysmenorrhoea)

IHKP

The clinical trial on *Kastartava* was conducted at the IHK, Patiala using *Pushyanuga churna* and *Pratapankeshwar rasa*. Out of the 26 cases included into the study, complete relief was observed in six cases, marked relief in 13 cases and moderate relief in seven cases.

Yoni vyapada

CRID

The clinical trial on *Yoni vyapada* was conducted at the CRI, Delhi. A total number of 13 cases were included into the study and divided into two groups. *Kaishore guggulu*, *Triphala kwatha* and douche with *Jatyadi taila* was provided in the first group consisting of 5 patients, out of which complete relief, marked relief

and moderate relief was observed in one case each while the remaining two cases discontinued the study.

The second group consisting of eight patients was provided with *Chandranshu rasa*, *Panchvalkal kwatha* and douche with *Jatyadi taila*. In this group complete relief and mild relief was observed in one case each and moderate relief in two cases, while the remaining four cases discontinued the study.

Madhumeha (Diabetes mellitus)

The clinical trials on *Madhumeha* (Diabetes mellitus) were conducted at the CRI, Delhi and IIK, Patiala. A total number of 44 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

S. No.	Therapy	Instt/ Centre	Total cases	Results					
				Complete control	Fair control	Broad control	Poor control	No control	LAMA/ Drop out
1.	Ayush-82 and Sudha shilajita	CRID	18	10	2	—	—	1	5
2.	Chandraprabha vati and Babbularishta	IIKP	26	—	1	3	3	3	16
Total			44	10	3	3	3	4	21

Mutrakricchra (Dysuria)

The clinical trials on *Mutrakricchra* (Dysuria) were conducted at the CRI, Delhi, RRI, Patna and Gwalior, and RRC, 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 *Mutrakricchra* (Dysuria) at a glance

Sl. No.	Therapy	Instt/ Centre	Total cases	Results				
				C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/ Drop out
1.	A. Goksuradi guggulu, Chandra- prabhavati and Sweta parpati	CRID	5	—	1	1	1	1
	B. Kaishore guggulu, Shudha shilajit, Trivang bhasma		10	—	5	3	1	1
2.	Goksuradi guggulu, Sweta parpati, Chandanasava	RRIP	6	2	1	—	2	—
3.	Goksuradi guggulu, Arogyavardhini, Punarnava rishta, Pasanbhedi kwatha	RRIG	29	20	4	2	3	—
4.	Pashanbhedi kwatha	RRCM	9	—	5 (P.R.)	3	—	1
Total			59	22	16	9	7	3

Vyanabala vridhi vikara

The clinical trials on *Vyanabala vridhi vikara* were conducted at the CRI, Delhi, IIK, Patiala RRI, Gwalior and RRC, Mandi. A total number of 115 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 *Vyanabala vridhi vikara* at a glance

S. No	Therapy	Instt/ Centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/ Drop out	
1.	Arjuna ksheer pak and Shankh-pushpi churna	RRID	7	—	—	—	4	—	3
2.	Arjuna twak vati	IIKP	24	—	1	5	6	—	12
3.	Sarpagandha vati, Chandraprabha vati, Guduchi satva, Mukta sukta, Sutsekhar rasa	RRIG	71	—	4	12	19	10	26
4. A.	Sankh-pushpi mishran	RRCM	11	—	5	2	—	4	—
						(P.R.)			
B.	Sarpagandha, Sankhpushpi mishran		2	—	2	—	—	—	—
Total			115	—	12	19	29	14	41

Vicharchika (Oozing eczema)

The clinical trials on *Vicharchika* (Oozing eczema) were conducted at the RRC, Itanagar and RRI, Trivandrum. A total number of 85 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

S. Therapy No.	Instt/ Centre	Total cases	Results					
			C.R	Mark. rel.	Mode. rel.	Mild rel.	No LAMA/ Drop out	
1. A. Tuvarak churna, Sudha gandhak, Mahamanjisthadi kwatha with Tuvarak taila or Mahamarichadi taila as local application	RRCI	34	6	3	4	2	4	15
B. Tuvarak churna, Sudha gandhak, Khadiraristha with Mahamarichadi taila		29	15	5	6	2	1	—
2. A. Chakramarda kwatha	RRIT	8	4	1	2	1	—	—
B. Manjisthadi kwatha, Arkapatra, sarshapa taila		7	2	1	3	—	—	1
C. Aragwadha kwatha, Aragwadha kera		7	6	1	—	—	—	—
Total		85	33	11	15	5	5	16

Dadru (Ring worm)

The clinical trials on *Dadru* (Ring worm) were conducted at the RRI, Trivandrum. A total number of 51 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 *Dadru* (Ring worm) at a glance**

S. No	Therapy	Instt/ Centre	Total cases		Results		
			C.R.	Partial relief	No rel.	LAMA/ Drop out	
1. A.	Vishvamitra kapala taila	RRIT	4	1	1	2	—
B.	Alcoholic extract of coconut shell ointment		31	20	7	4	—
C.	Petroleum ether extract of coconut shell ointment		10	1	1	2	6
D.	Chakramarda kera		6	3	1	—	2
Total			51	25	10	8	8

Vrana (Ulcer)

The clinical trials on *Vrana* (Ulcer) were conducted at the CRI, Delhi and IIK, Patiala. A total number of 190 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 *Vrana* (Ulcer) at a glance

S. No.	Therapy	Instt./ Centre	Total		Results			
			Cases	C.R.	Mark. rel.	Mode. rel.	Mild rel.	No rel.
1.	Kaishore guggulu, Arogyavardhini vati, Jatyadi taila Pichu	CRID	35	13	—	8 (P.R.)	—	14
2. A.	Arogyavardhini vati and Jatyadi taila	IHKP	104	104	—	—	—	—
B.	Rasanjanadi vati and Jatyadi taila		46	—	—	—	46	—
C.	Chandra prabhavati and Jatyadi taila		5	5	—	—	—	—
Total			190	122	—	8	46	14

Kitibha (Eczema)

CRID

The clinical trial on *Kuibha* (Eczema) using *Kaishore guggulu*, *Kanchanar guggulu*, *Arogyavardhini vati* with *Laghumanjistadi kwatha* was conducted at CRI, Delhi. Out of the 17 cases included into the study, complete relief was observed in nine cases, partial relief in six cases and no relief in two cases.

Psoriasis

The clinical trials on Psoriasis were conducted at the RRI, Trivandrum using *Nimbidin* and *Lajjalu Keram* in one group and *Nimbidin* and *Aragwadha keram* in another group. In the first group, 19 cases were included, out of which marked relief was observed in two cases, moderate relief in 10 cases and mild relief in four cases, while the remaining three cases discontinued the study. In the second group, 40 cases were included and the result of this group will be analysed after the completion of study since double blind method of study has been used in this group.

Pama (Scabies)

The clinical trials on *Pama* (Scabies) were conducted at the IIP, Cheruthuruthy and RRC, Itanagar. A total number of 147 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

S. No.	Therapy	Instt./ Total	Results					LAMA/ Drop out
			Centre cases	C.R. rel.	Mark. rel.	Mode. rel.	Mild rel.	
1.	Patola thriphaladi churna internally, Tambooladi taila exterrally	IIPC 2	—	2	—	—	—	—
2.	Tuvarak churna, Shudha gandhak with local application of Tuvarak taila or Tankan bhasma with coconut oil	RRCI 145	60	14	13	10	8	40
Total		147	60	16	13	10	8	40

Switra (Vitiligo)

The clinical trials on *Switra* (Vitiligo) were conducted at the IIP, Cheruthuruthy, RRC, Vijayawada and Hastinapur. 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 *Switra* (Vitiligo) at a glance

S. No.	Therapy	Instt./ Centre	Total cases	Results					
				C.R.	Mark. rel	Mild rel.	No LAMA/ rel.	Drop out	
1.	A. Nimbapanchanga churna, Gunjachitraka vati	IIPC	3	—	—	—	1	—	2
	B. Dhatriyadi churna, Avalg-ujabeejadi vati		8	—	—	1	3	—	4
2.	AYUSH-57	RRCV	5	—	1	2	—	—	2
3.	A. AYUSH-57	RRCH	24	2	—	7	—	2	13
						(P.R.)			
	B. Placebo		23	1	—	4	—	8	10
						(P.R.)			
Total			63	3	1	14	4	10	31

Sleepada (Filariasis)

The clinical trials on *Sleepada* (Filariasis) were conducted at the RRI, Patna, RRC, Nagpur and RRC, Vijayawada. A total number of 79 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 Sleepada (Filariasis) at a glance

S No.	Therapy	Instt./ Centre	Total cases	Results					
				C.R. rel.	Mark. rel.	Mode rel.	Mild No rel.	LAMA/ Drop out	
1.	AYUSH-64	RRIP	22	1	2	3	3	2	11
2.	AYUSH-64	RRCV	14	—	—	2	5	6	1
3.	Sleepada capsule*	RRCV	43	—	5	8	17	7	6
Total			79	1	7	13	25	15	18

Apasmara (Epilepsy)

The clinical trials on *Apasmara* (Epilepsy) were conducted at the CRI, Delhi, IIK, Patiala and ARU, Bangalore. A total number of 61 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 Apasmara (Epilepsy) at a glance

S. No.	Therapy	Instt./ Centre	Total cases	Results				
				Cont- rolled	Imp- roved	Poor Cont- rol	No imp- rove- ment	LAMA/ Drop out
1.	AYUSH-56	CRID	25	5	16	—	2	2
2.	Brahmighrit	IHKP	31	4	14	9	2	2
3.	Ayushman-13, Ayushman-14 and Dhanwan- tara taila	ARUB	5	—	—	1	—	—
Total			61	9	30	10	8	4

*Containing Amruta, Guggulu, Sunthi, Punarnava, Shakotaka twak, Haridra, Rasna and Haritaki.

In addition to this, study on AYUSH-56 in cases of *Apasmara* has also been carried out at RRI, Calcutta.

Vishama jwara (Malaria)

The clinical trials on established cases of *Vishama jwara* (Malaria) were conducted at the RRI, Junagadh, Jaipur and Gwalior RRC, Nagpur, Jammu and ALURIM, Madras. A total number of 88 cases have been treated using AYUSH-64—a coded drug. 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 *Vishama jwara* (Malaria) at a glance

S. Therapy No.	Instt./ Centre	Total cases	Results				
			C.R.	Mark. rel.	Mode. rel.	No LAMA/ rel. Drop out	
1. AYUSH-64	RRIJu	22	17	—	—	—	5
2. AYUSH-64	RRIJ	3	2	1	—	—	—
3. AYUSH-64	RRIG	7	1	—	—	—	6
4. AYUSH-64	RRCN	16	8	1	3	—	4
5. AYUSH-64	RRCJ	5	1	1	—	—	3
6. AYUSH-64	ALURIM	35	25	—	—	9	1
Total		88	54	3	3	9	19

Vishama jwara (Symptomatic cases)

The clinical trials on *Vishama jwara* (symptomatic cases) were conducted at the IIK, Patiala and RRI, Jaipur, RRC, Nagpur, Itanagar, Hastinapur and Mandi. A total number of 276 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 trails of Ayurvedic preparations on *Vishama jwara* (Symptomatic cases) at a glance

S. No.	Therapy	Instt./ Centre	Total cases	Results				
				C.R. rel.	Mark. rel.	Mod. rel.	No. rel.	LAMA/ Drop out
1.	AYUSH-64	IKKP	50	26	—	—	1	23
2.	AYUSH-64	RRIJ	38	27	7	4	—	—
3.	AYUSH-64	RRCN	7	2	—	—	—	5
4.	AYUSH-64	RRCI	10	10	—	—	—	—
5.	A. AYUSH-64	RRCH	60	29	—	3	3	25
						(P.R.)		
	B. Chloroquine	RRCM	57	20	—	1	2	34
						(P.R.)		
6.	A. AYUSH-64	RRCM	45	—	26	2	2	15
						(P.R.)		
	B. Mahasudarshan churna and Godanti bhasma	RRCM	9	—	5	1	3	—
						(P.R.)		
Total			276	114	38	11	11	102

Lakshan Samucchaya of Unmada

ARUB

The study has been continued further and 22 cases of *Unmada* were included into this study making a total of 172 cases studied so far. This study will be concluded after completing 300 cases and

Lakshan Samuchya of *Unmada* recorded in these cases will be compared with the signs and symptoms of Unmada described in classical texts.

Unmada (Schizophrenia)

ARUB

The study has been continued further and 14 cases were included in the Ayurvedic treatment group while 15 cases were included into the group treated with chlorpromazine. The results of the study are as under : -

Table

S. No.	Therapy	Results of treatment					
		Comp. rel.	Mark. rel.	Mode. rel.	Mild rel.	No rel.	LAMA Total
1	Ayurvedic treatment	—	3	5	6	—	14
2	Chlorpromazine	1	3	4	5	—	15

Evaluation of gastric response to *Kulatha* and *Moonga* in normal volunteers

DRUB

During the reporting period augmented histamine test in eight volunteers and fractional gastric analysis in 20 volunteers was done to select volunteers for the study. The volunteers in which augmented histamine test was done, were also observed for pre-histamine and post-histamine activity to select the volunteers for further study.

Kulatha induced fractional gastric analysis was done in three volunteers while *Moonga* induced fractional gastric analysis was done in only two cases. Further studies in sufficient number of cases are required to conclude the findings of the study.

The role of Pushkarmool and Guggulu in the cases of Ischaemic Heart Diseases and Hypertension

CDRSV

The study has been continued further and during the reporting

period 40 cases of either sex mostly in 40-60 years of age presenting with clinical symptoms of Ischaemic heart diseases supported by laboratory investigations particularly ECG findings were selected for the study at OPD level. *Pushkarmool guggulu* in the form of pills was administered in the divided doses of 8 to 10 gm. per day for a period of three to six months. The presenting clinical symptomatology along with ECG findings and biochemical parameters were recorded initially and afterwards for the assessment of the response of the therapy. Response of the treatment was found to be very encouraging specially in the patients who continued their treatment at least for a period of six months. In such cases precordial pain, dyspnoea and palpitation was found to be completely absent after the treatment. Their ECG pattern returned to normal with considerable improvement observed through various biochemical parameters.

Study of AYUSH-55 in the cases of Obesity

CDRSV

Ten patients of either sex presenting with clinical symptoms of obesity supported by biochemical investigations were selected for this study at OPD level. AYUSH-55 in the dose of two tablets three to four times a day was administered to these patients for a period of three to six months. Presenting clinical symptoms and serum cholesterol were assessed fortnightly. The drug has shown good response in reduction of body weight and serum cholesterol level.

Evaluation of AYUSH-64 in Giardiasis and Amoebiasis

CDRSB

During the reporting period ten cases of Amoebiasis were taken for study. AYUSH-64 was prescribed to these patients in the dose of two tablets three times a day for 10 days. The study showed that only one patient could get complete relief while five patients did not respond to the treatment and four patients discontinued the study.

Effect of Vajikaran drugs in the treatment of male sexual disorders

ALURIM

This study was started during the reporting period and seven patients were included into this study. The drug was provided in

the dose of 2 gm. twice daily along with milk for a period of 3-6 months. The drug did not show any response in the cases studied.

Arbuda (cancer)

ACHT

Amla Cancer Research Centre, Trichur has taken up a new study on cancer and included 35 cases of cancer of oral, breast, larynx, cervix, osteosarcoma and neuroblastoma into the study. These cases were treated with (A) Gulgulutiktakam kwath and Kanchanara guggulu gulika (B) Rasa sinduram with betal leaf juice. By the end of the reporting period these cases were under treatment with different duration of treatment ranging from one month to 12 months. The treatment provided showed :

1. Symptomatic relief in pain even after withdrawal of analgesics and sedatives used before.
2. Increase in sleeping time ranging from 2-4 hours.
3. Reduction in bed depending time.
4. Improvement in appetite by way of increased food intake.
5. Improvement in bowel movements in cases with constipation and distension of abdomen.
6. Fast recovery from radiation therapy complications like nausea, vomiting, diarrhoea, dryness in mouth etc.
7. Easy neutralisation of toxic effects of chemotherapy.
8. Improvement in general health and increase in tolerating capacity.
9. Increase in Hb and lowering of ESR.

Further studies are in progress.

Amchi Research Unit Leh

RPASML

This Unit has carried out studies on *Thaknath* (Hypertension), *Chhoser* (Eczema) and *champa* (Flue), details of which are indicated

below :

S. No.	Name of the diseases	Drugs used	No. of cases studied	Remarks
1.	Thaknath (Hypertension)	A. Skuru- nerna	10	These case were included during the previous year and were followed up during the reporting period
		B. Thaktuk- kunsel	12	
2.	Chhoser (Eczema)	A. Lhodot chhogyat	7	These cases are still under obser- vation.
		B. Sposkar- chhopa	9	
3.	Champa (Flue)	A. Chukang nerna	20	Chukang nerna appears to be more effective
		B. Chandan- gyatpa	20	
		C. Placebo	20	

The unit has extended medical aid to 2510 (1626 new + 884 old) patients at Out Patient Department level.

The unit is maintaing a Museum-Library which has 63 books on Amchi Medicines and 105 specimen of herbal and mineral drugs. 20 specimens of herbal and mineral origin were added to the Museum during the reporting period.

The unit has also undertaken work related to the preparation of Glossary of drugs and diseases and a Booklet containing principles of Amchi Medicine. 50 item each have been completed for Glossary and Booklet during the reporting period.

**Statement showing disease groups, number of patients studied
and participating projects during 1985-86**

S. No.	Disease groups	No. of patients	Participating projects
1	2	3	4
I. Amavata/Sandhigatavata			
	(a) Amavata	282	CRID, CRIB, IIPC, IIKP, RRIG, RRIC, RRIJu, RRIP, RRCI
	(b) Sandhigatavata	20	RRCI, RRIG
II. Amlapitta, Parinamasula			
	(a) Amlapitta	98	CRID, IIKP, RRIJu, CRUK, RRCM
	(b) Parinamasula	247	CRIB, RRCI, RRIJ, CRUK, CDRSB
	(c) Annadravasula	56	RRCI, CRUK
III. Atisara, Pravahika, Grahaniroga			
	(a) Pravahika	19	CRID, CRUK
	(b) Grahani roga	51	CRID, CRIB, RRCH
	(c) Jeerna pravahika	18	IIKP, RRIP
IV. Other Udar roga/Udarsula			
	(a) Udarsula	120	CRUH
	(b) Krimi roga	236	CRIB, IIKP, RRIL, RRIJ, RRIG, RRCN, RRCJ, RRCM
	(c) Kamala	6	RRIL, CDRSB
	(d) Yakrit roga/dosha	9	CRID
	(e) Arsha	40	IIKP

(Contd.)

1	2	3	4
V. Swasa, Kasa, Pratishyaya			
(a)	Tamak swasa	512	CRID, CRIB, IIPC, IIKP, RRIL, RRIJu, RRIP, RRIG, RRCI, RRCV, RRCH
(b)	Jeerna pratishayaya	5	RRCV
VI. Twak roga			
(a)	Switra	63	IIPC, RRCV, RRCH
(b)	Pama	147	IIPC, RRCI
(c)	Vicharchika	85	RRCI, RRIT
(d)	Kitibha	17	CRID
(e)	Dadru	51	RRIT
(f)	Psoriasis	59	RRIT
VII. Stri roga			
(a)	Rakta pradara	53	CRID, IIKP
(b)	Sweta pradara	37	CRID, RRIJu
(c)	Kastartava	26	IIKP
(d)	Yoni vyapada	13	CRID
VIII. Manasa roga			
(a)	Unmada	29	ARUB
(b)	Lakshana samuchya	22	ARUB
(c)	Apasmara	61	CRID, IIKP, RRIC, ARUB
IX. Madhumeha, Mutra kricchra			
(a)	Madhumeha	44	CRID, IIKP
(b)	Mutra kricchra	59	CRID, RRIP, RRIG, RRCM
(c)	Medoroga	10	CDSV

(Contd.)

1	2	3	4
X.	Sleepada	79	RRIP,RRCN, RRCV
XI.	Vishma jwara		
(a)	Vishama jwara (Malaria)	88	RRIJu, RRIJ, RRIG, RRCN, RRCJ, ALURIM
(b)	Vishama jwara (Symptomatic cases)	276	IIKP, RRIJ, RRCN, RRCI, RRCH, RRCM
XII.	Vatavyadhi		
(a)	Pakshaghata, Pakshawadha	136	CRIB, IIPC, IIKP, CDRSB
(b)	Khanja and Pangu	27	IIPC, CDRSB
(c)	Gridhrasi	36	CRID, CRIB, IIPC
(d)	Saisaveeyavata	23	IIPC
(e)	Kampa vata	2	IIPC
(f)	Ardita	2	CDRSB
XIII.	Rakta chapa, Hridroga		
(a)	Rakta chapa	115	CRID, IIKP, RRIG, RRCM
(b)	Hridroga	40	CDRSV
XIV.	Vrana	190	CRID, IIKP
XV.	Arbuda (Cancer)	35	ACHT

Statement of the patients attended at OPD and admitted/discharged in the I.P.D. during 1985-86

Sl. No.	Institute/Centre/Unit	Number of patients attended			i.P.D.		%age of bed occupancy
		New	Old	Total	Admitted	Discharged	
1	2	3	4	5	6	7	8
1.	CRI Delhi	16545	20952	37497	312	289	46.7
2.	CRI, Bhubaneswar	8014	12898	20912	267	262	43.21
3.	IIP, Cheruthuruthy	11244	36940	48184	207	206	94.01
4.	IIK, Patiala	9482	8629	18111	447	474	67.54
5.	RRI, Lucknow	9173	13280	22453	32	32	5.14
6.	RRI, Calcutta	3024	13495	16519	73	68	N.I.*
7.	RRI, Junagadh	4188	11314	15502	38	41	9.91
8.	RRI, Patna	4304	8576	12880	88	81	79.86
9.	RRI, Jaipur	4952	4384	9336	211	214	59.87
10.	RRI, Gwalior	7119	7161	14280	146	151	32.15
11.	RRI, Trivandrum	4876	N.I.	4876	91	91	90.00

(Contd.)

1	2	3	4	5	6	7	8
13.	RRC, Itanagar	3964	3567	7531		N.I.	
14.	RRC, Vijayawada	4260	7798	12058	57	60	53.00
15.	RRC, Sikkim	6800	2812	9612	112	113	47.6
16.	RRC, Hastinapur	7228	6309	13537	23	21	9.8
12.	RRC, Nagpur	1606	5738	7344		Not yet started	
17.	RRC, Jammu	6412	9067	15479	37	31	N.I.
18.	RRC, Jhansi	1927	2160	4087	—	—	—
19.	RRC, Bangalore	1319	3126	4445		Not yet started	
20.	RRC, Mandi	4114	2953	7067		-do-	
21.	CRU, Kottakkal		Not applicable		187	185	87.1
22.	CRU, Hyderabad		-do-		101	94	N.I.
23.	ARU, Bangalore	165	525	690	48	39	23.75
24.	ALURIM, Madras	363	589	952	25	25	Not applicable
Total		1,21,079	1,82,273	3,03,352	2,502	2,477	

*Not indicated.

HEALTH CARE RESEARCH PROGRAMME

HEALTH CARE RESEARCH PROGRAMME

The health and medicare research programme of the people living in rural/tribal areas still remains a big problem inspite of the tremendous technological development in our country. Council have launched different research programmes in this direction modulated to have rural bias so that benefits of the research programmes carried out so far can reach to the grass root levels. Priorities for these programmes have been drawn keeping in view that the benefits of research should have a wider utilitarian base and should flow to the nook and corner of the country. The Council, since 1972 onwards has been carrying out work in this field through Mobile Clinical Research teams attached with various Institutes, Centres and Units functioning under the Council. Later on to make the programme community oriented, the Institutes/Centres functioning under the Council were asked to adopt certain villages under Community Health Care Research Programme. In the end of VI Five Year Plan the Council has also made a start to provide Health Care facilities to the tribal people and established five Tribal Research Projects for the same. The work carried out during the reporting year under these programmes is reported hereunder :—

1. Service-Oriented Survey and Surveillance Research Programme

This programme emphasises collection of data pertaining to the nature and frequency of prevalent diseases, food habits with regard to the different seasons, customs and belief, natural resources, the standard and type of treatment available to the rural folk. Under this programme Mobile Clinical Research Teams visit each one of the houses in the selected villages and provide medical aid besides collecting the requisite data. During the reporting period 40 villages having a population of 30,414 individuals have been covered and incidental medical aid provided to 16,151 individuals—(Annexure I).

2. Community Health Care Research Programme

Under this programme selected villages are adopted and visited periodically by the team of Physicians. They provide suitable medical aid to the villagers for their illnesses and educate them through group discussions/lectures regarding the ways and means to be adopted for maintenance of health and prevention of diseases. The physicians also educate and acquaint the rural folk about the herbs locally available together with their uses so that many of the common ailments be treated by the locally available resources. During the period under review 38 villages consisting of a population of 41,639 individuals have been covered and incidental medical aid provided to 14,595 individuals (Annexure II).

3. Tribal Health Care Research Programme

The main aim of this programme is to carry out research to work out an appropriate strategy for health and medicare programme of the back-wardly placed areas inhabited by Scheduled Caste and Scheduled Tribe population. This programme is being carried out at the Tribal Health Care Research Projects functioning at Car-Nicobar (Andaman-Nicobar Islands), Ranka Block (Distt. Palamu-Bihar), Nawapur (Distt. Dhule-Maharashtra), Rama Block (Jhabua-Madhya Pradesh) and Ziro (Arunachal Pradesh). Under this programme about 30 villages consisting a population of more than 25,000 individuals have been covered and incidental medical aid provided to about 4,000 individuals (Annexure III).

**Statement of work carried out during 1985-86 under Service
Oriented Survey and Surveillance Research Programme**

S. No.	Name of the Institute/Centre/Unit	Name of the villages covered	Population of the villages covered	No. of patients treated*	Name of the common diseases
1	2	3	4	5	6
1.	CRI, Delhi	Alipore, Bakoli, Nilothi	756	1,309	Atisara, Amlapitta, Amavata/Sandhigatvata, Jwara, Kasa, Karna roga, Mukh roga, Pratisyaya, Swasa, Twak roga, Vrana, Udar rog
2.	CRI, Bhubaneshwar	Orokol, Jhintasasan	3,139	919	Atisara, Amlapitta, Amavata, Sandhigatvata, Jwara, Kasa, Kandu, Katisula, Kostabandhata, Twak roga, Vatavyadhi

(Contd.)

*includes patients from neighbouring villages attended for treatment

1	2	3	4	5	6
3.	IIP, Cheruthuruthy	Pulakkode Venganellur	5,822	3,609	Katisula, Mukha roga, Pradara, Swasa, Twak roga, Pandu, Kasa, Krimi
4.	IHK, Patiala	Partapgarh, Rajgarh, Eshapur, Tarain	1,124	745	Atisara, Amlapitta, Jawara, Kasa, Pratishayaya, Pra- vahika, Shira sula, San- dhi sula, Udar sula
5.	RRI, Calcutta	Kalikapur	N.I.*	215	Pandu, Pravahika, Jwara, Amlapitta, Twak roga, Vata-vyadhi, Kasa, Krimi
6.	RRI, Patna	Magurahi, Hardas Bigha	963	2,088	Atisara, Amlapitta, Kasa, Krimi, Karna roga, Parva- hika, Sleepada
7.	RRI, Jaipur	Dabh-Kanala, Bhurthal, Syopur	2,815	1,244	Atisara, Jwara, Kasa, Kandu, Katisula, Pradara, Raktavikar, Udarsula, Varna, Sirah sula, Netra roga, Vata vyadhi

(Contd.)

*not indicated

1	2	3	4	5	6
8.	RRI, Gwalior	Khurari, Dhaneli	N.I.	586	Kasa, Kandu, Pratishayaya, Karna roga, Dadru, Jwara, Vrana, Sandhisula
9.	RRC, Nagpur	Kanhan	4,686	716	Atisara, Amavata, Kasa, Kustha roga, Pratishayaya, Pravahika, Rajyakshma, Swas roga, Switra, Twak roga, Vicharchika, Vata vyadhi
10.	RRC, Vijayawada	Ambapuram, Rayanapadu	612	401	Jwara, Kasa, Katisula, Kosta badhata, Mukh roga, Netra roga, Swasa, Sirahasula, Udarsula, Vatavyadhi, Sweta pardara
11.	RRC, Sikkim	Thekabong, Tumlabong, Tintek, Bhusuk, Losing	1,770	657	Atisara, Jwara, Kasa, Krimi, Pravahika, Kandu, Sirahsula, Udarsula, Vatavyadhi, Ajirna

(Contd.)

	2	3	4	5	6
12.	RRC, Hastinapur	Kishanpur, Manipur	1,400	570	Jwara, Kasa, Atisara, Udarsula, Sandhisula, Amlapitta, Swasa, Vata-vyadhi, Pratishayaya, Mukh roga
13.	RRC, Jammu	Seri-panditan	691	461	Atisara, Amlapitta, Jwara, Kasa, Pratishayaya, Pandu, Pardara, Sandhisula, Twak roga
14.	RRC, Jhansi	Simrabari	1,250	40	Atisara, Jwara, Kasa, Krimi, Twak roga, Vrana
15.	RRC, Bangalore	Ejipura, Agara, Channa Sandra	566	246	Atisara, Amlapitta, Jwara, Kasa, Krimi, Karna roga, Katisula, Netra roga, Twak roga, Vrana
16.	RRC, Mandi	Bohali	1,789	671	Kasa, Amlapitta, Visham-jwara, Mukh roga, Atisara, Netra roga, Prati-shayaya, Twak roga

(Contd.)

1	2	3	4	5	6
17.	RRC, Gauhati	Garal, Kamakhya	308	1113	Agnimandya, Amlapitta, Atisara, Jwara, Kasa, Pandu, Pradara, Pratishayaya, Twak roga, Vata roga, Udarsula
18.	MCRU, Varanasi	Sultanpur, Din Das Pur	1,520	482	Pandu, Atisara, Pratishayaya, Krimi, Twakroga, Agnimandya
19.	MCRU, Jamnagar	Chandragadh	1,203	79	Atisara, Amlapitta, Jwara, Kasa, Krimi, Karna roga, Katisula, Mukhroga, Netra roga, Pradara, Twak roga, Udarsula, Vrana
Total		40	30,414	16,151	

Annexure-II

Statement of work carried out during 1985-86 under Community Health Care Research Programme

S. No.	Name of the Institute/ Centre/Unit	Name of the villages covered	Population of the villages covered	No. of patients treated*	Name of the common diseases
1	2	3	4	5	6
1.	CRI, Bhubaneswar	Sisupalgarh, Sundar- pada, Bankuala, Malipada	3519	654	Atisara, Amavata, Sandhi- gatvata, Sleepada, Twakroga, Jwara, Kasa, Vatavyadhi, Krimi, Kandu, Katisula
2.	IIP, Cheruthuruthy	Pilakkad, Thichur	5435	3298	Atisara, Arsha, Jwara, Kasa, Krimi, Kandu, Katisula, Kostha badhata, Mukhroga, Pandu, Pradara, Sirahsula, Twakroga, Vatavyadhi

(Contd.)

*includes patients from neighbouring villages attended for treatment

1	2	3	4	5	6
3.	IJK, Patiala	Chaura, Noor Kheri, Seona	2700	1679	Jwara, Kasa, Pratishayaya, Udarsula, Sirahsula
4.	RRI, Calcutta	Kashinathpur	N.I.*	201	Atisara, Swasa, Jwara, Amla- pitta, Twakroga, Vatavyadhi, Pratishayaya, Kasa, Krimi, Pravahika
5.	RRI, Junagadh	Madanpura	1500	54	N.I.
6.	RRI, Patna	Maujipur	692	672	Atisara, Amlapitta, Jwara, Kasa, Twakroga, Katisula, Pratishayaya
7.	RRI, Jaipur	Siwar	5300	1974	Atisara, Abhishyanda, Jwara, Kasa, Karnaroga, Katisula, Kostabadhata, Mukhroga, Netra roga, Pandu, Pradara, Twakroga, Vatavyadhi, Udar- sula

(Contd.)

*not indicated

1	2	3	4	5	6
8.	RRI, Gwalior	Laxmangadh, Baratha	N.I.	360	Kandu, Kasa, Sirahsula, Vatavyadhi, Varna, Atisara, Dadru, Sandhi sula
9.	RRC, Nagpur	Khairy, Satnavari, Dudha	1515	603	Amlapitta, Amavata, Kosta- vridhi, Kasa, Krimi, Kati- sula, Pandu Sleepada, Visham Jwara, Vatavyadhi, Swasa
10.	RRC, Itanagar	Pachin	700	459	Atisara, Grahani dosa, Jwara, Kasa, Krimi, Netraroga, Pratishayaya, Pama, Udar- sula, Vatavyadhi, Vrana, Vicharchika, Yakritvikara
11.	RRC, Sikkim	Rakdong, Luing	1992	292	Atisara, Jwara, Kasa, Krimi, Pratishayaya, Rajayakshma, Raktavikara, Swasa, Sirahsula, Udarsula, Gandamala

1	2	3	4	5	6
12.	RRC, Hastinapur	Makdumpur, Saifpur	4700	598	Twakroga, Amlapitta, Atisara, Jwara, Vatavyadhi, Swasa, Kasa, Pradara, Udarsula, Pratishyaya, Adhman, Pravahika
13.	RRC, Jammu	Chak Malikah	389	135	Atisara, Jwara, Pratishayaya, Twak roga, Visham jawara, Pama, Vrana
14.	RRC, Jhansi	Dunara	362	29	Jwara, Kasa, Twakroga, Udarsula, Atisar
15.	RRC, Bangalore	Rachanamadu	330	1006	Atisara, Jwara, Krimi, Karna roga, Netra roga, Twakroga, Vrana
16.	RRC, Gauhati	Maghupara, Dehsatal, Chakarodi	N.I.	227	N.I.
17.	RRC, Mandi	Kothi	1250	144	Amlapitta, Kasa, Visham jwara, Jwara, Krimi, Mukhroga, Netraroga

(Contd.)

1	2	3	4	5	6
18.	ALURIM, Madras	Seven villages	10800	952	Atisara, Jwara, Kasa, Krimi, Karna roga, Netra roga, Sirahsula, Twakroga, Udarsula, Vrana, Vatavyadhi
19.	ARU, Tarikhet	Richi	455	1258	Agnimandya, Udarsula, Udar roga, Atisara, Krimi, Kasa, Kandu, Jwara, Pradara, Netra roga, Vata-vyadhi
Total		38	41,639	14,595	

Statement of work carried out during 1985-86 under Tribal Health Care Research Programme

S. No.	Name of the tribal project	Name of the tribal area/village covered	Population of the Tribal Pocket/Villages covered	No. of patients treated	Name of the common diseases
1	2	3	4	5	6
1.	THCRP, Ziro	Lampia, Tamin, Tazang, Kalong, Jorum, Reru, Dhaporijo, Dhumporijo, Lamdik, Dutta, Hiza, Yazali, Penni Bello	12,503	3,20	Kandu, Amlapitta, Vicharchika, Atisara, Raktatisar, Jwara, Kasa, Atisara, Krimi
2.	THCRP, Dhule	Vasada, Karanji Khud, Lakad, Kot, Anjana, Vilada, Khekada	5,500	1,427	Amlapitta, Atisara, Jwara, Kasa, Krimi, Karnaroga, Katisula, Kaudu, Pratishayaya, Pravahika, Sweta pradara, Sandhigatavata, Twakroga, Vatavyadhi, Udar-sula.

(Contd.)

1	2	3	4	5	6
3.	THCRP, Ranka Block, Palamau	Ranka Khurd, Bhalwabi, Hurdage, Sikata, Jogikhura, Kanchanpur, Mungdaha, Siksiga, Khurda, Barbadiha, Hunhe, Dhurda, Hunhe Kala, Sharasan Sonadage, Sigsiga Kala	7816	2471	Atisara, Amlapitta, Amavata, Galganda, Gridhrasi, Jwara, Kasa, Karna roga, Kandu, Katisula, Netra roga, Pradara, Rakta vikara, Rajodosa, Sirahsula, Sandhigatavata, Sandhisula, Twakroga, Udarsula, Vicharchika

MEDICO-BOTANICAL-SURVEY

MEDICO-BOTANICAL SURVEY

Medico-botanical Survey Units, since 1971 has played an important and effective role in the drug research programmes of the council. The 17 Survey Units located in 16 states of the country extend their activities from Alpine Himalayan ranges to the coastal areas and also penetrating into the arid zones of the country. Such an exhaustive exploration in different geographical areas of the country having different climatic and altitudinal levels, extending from Jammu and Kashmir to Trivandrum and Itanagar to Junagarh has provided information relating to medico-botanical potential of the country. The study has also helped in making the qualitative and quantitative assessment of the Herbal Wealth of Ayurveda and Siddha importance which is the main object of the Survey programmes.

The brief resume of the exploratory work undertaken by the different Survey Units of the Council during the year 1985-86 is as follows :—

Andhra Pradesh

RRCV

The Survey Unit at Vijaywada has conducted 11 local trips for the collection of drug samples and supplied about 40 kg. of the raw drug material consisting of 17 medicinal species for research purposes. The Unit has also accessioned 636 plant specimens and prepared 150 index card. A monograph entitled, "A report on Ethno-Botanical Survey of Bastar district with special reference to its medicinal flora and tribal medicine" was also prepared for publication by the Council. It also processed and drafted data of 435 folk claims collected from Warangal, Karimnagar and Srikakulam districts.

Arunachal Pradesh

RRCI

The Survey Unit located at Itanagar has undertaken survey work in Banderdewa, Hopli, Khonsa and Deomali forest divisions and collected a total of 532 plant specimens representing, 97 families, 216 genera and 409 species. A total of about 437 specimens were mounted for Herbarium and 172 were accessioned. About 287 plant specimens were identified. A total of 630 plant specimens were poisoned. About 36 drug samples were added to the Museum. 20 kg. of the plant material of 4 medicinal species were collected for supply purpose. A total of 24 folk-lore claims were also collected.

Assam

RRCGa

The Survey Unit located at Gauhati carried out survey work in Chandubi—Kulsi forest division of Kamrup district and Greater Gauhati. During the survey work, the Unit collected about 24 plant specimens representing 15 families, 15 genera and 8 species. A total of 227 plant specimens were mounted for Herbarium and 140 specimens were poisoned. Nine drug samples were added to the Museums. About 85 kg. of the plant material consisting of 13 medicinal plants were collected for supply purpose. A total of five folk-lore claims were also collected.

Bihar

RRIP

The Survey Unit located at Patna conducted medico-ethnobotanical explorations in Daltongang and Garhwa South forest divisions and covered about 9 forest ranges comprising of 53 areas falling under these forest divisions. During the survey work, the Unit collected about 1,017 plant specimens spreading over 339 field book numbers, representing 71 families, 207 genera and 339 species. A total of about 208 plant specimens were accessioned and identity of another about 160 mounted specimens was confirmed for adding to the Herbarium. About 16 folk lore claims, 14 museum samples and 60 kg. of the crude drug material of 7 medicinal species were also collected. A total of about 72 kg. of the plant material was supplied for research purposes.

Gujrat

RRIJu

The Survey Unit located at Junagadh has undertaken medicobotanical explorations in some important localities of Jamnagar and Kachchh districts. During Survey work 69 specimens were collected representing 33 families, 46 genera and 69 species. A total number of 291 herbarium sheets representing 68 species were mounted for Herbarium and 316 sheets comprising of 86 species were accessioned. About 15 crude drug samples were added to the Museum. 25.7 kg. of the dried crude drug samples comprising of 7 species were collected for supply purpose. 5 folklore claims were also collected.

Himachal Pradesh

RRCM (Mandi)

The Survey unit located at Mandi has confirmed the identity of 427 mounted plant specimens for accessioning and 120 specimens were mounted for adding to the Herbarium. About 10 specimens were also added to the Museum. The unit also collected about 49 kg. of the plant material consisting of 6 medicinal species for supply purposes.

Jammu and Kashmir

RRCJ

The Survey Unit at Jammu has surveyed Guraj forest division and collected about 276 plant specimens representing 51 families, 142 genera and 128 species. A total of about 187 plant specimens were accessioned and another about 87 mounted for Herbarium. About 1500 plant specimens were poisoned. 18 drug samples added were to the Museum. A total number of 780 index cards were prepared. The Unit also collected about 120 kg. of the plant material of 37 medicinal species for supply purpose. Three folklore claims were also collected.

Karnataka

RRCB

The Survey Unit located at Bangalore has conducted survey work in about 20 areas of Kolar district and collected 315 plant specimens representing 62 families, 149 genera and 204 species. Most of this collection consisted of important Ayurvedic plants. A total of about 700 plant specimens were accessioned and another about 425 mounted for adding to the Herbarium. 175 drug samples were added to the Museum. About 200 index cards were prepared, the unit

has identified 91 plant species at the Herbarium, BSI, Coimbatore and completed the writing work on "Flora of Coorg district".

Kerala

RRIT

The Survey Unit located at Trivandrum has carried out survey work in the Nilambur and Waynad forest divisions, and collected 249 plant specimens representing 79 families, 173 genera and 232 species. About 215 plant specimens were accessioned and 481 mounted for Herbarium. The identity of 237 mounted specimens was confirmed. About 10 drug samples were added to the Museum. A total of about 95 kg. of the different drug sample were collected for supply. About 15 folklore claims were also collected.

Madhya Pradesh

RRIG

The survey unit located at Gwalior undertook two joint survey tours in collaboration with Regional Research Centre, Jammu and Regional Research Centre, Jhansi. A total number of 404 plant specimens were added to the Institute Herbarium.

Maharashtra

RRCN

The Survey Unit of RRC, Nagpur has carried out Medico-ethno-botanical explorations in the Pusad, Yavatmal, Akot and Akala forest divisions. During the survey work, a total number of 87 plant specimens were collected and about 35 specimens were identified. The totally identified and partially identified specimens represented 4 families, 51 genera and 35 species. About 99 plant specimens were added to the Herbarium and another 125 identified specimens were mounted for Herbarium. A total of 191 plant specimens were poisoned. About 16 drug samples of plant origin were added to the Museum. About 8 drug samples weighing about 5 kg. were collected for supply purpose. A total number of 28 folklore claims were also collected.

Orissa

CRIB

The Survey Unit located at Bhubaneswar has undertaken medico-botanical exploration of Balliguda forest division. During

the survey work, a total number of 213 plant specimens, representing 49 families, 130 genera and 200 species, were collected. About 303 plant specimens were accessioned, and another 300 mounted specimens were identified for adding to the Herbarium. 6 drug samples were added to the Museum. A total of 18 folk-lore claims were also collected.

Rajasthan

RRIJ

The Survey Unit at Jaipur has conducted tours in Sawai Modhopur, Karauli, Banswara and Udaipur forest divisions. A total number of 550 plant specimens were collected, 241 specimens from Sawai Madhopur forest division representing 66 families, 148 genera and 164 species while 309 specimens from Banswara and Udaipur forest division representing 74 families, 152 genera and 167 species. A total number of 922 plant specimens were accessioned and another 200 were mounted for Herbarium. 16 drug samples were added to the Museum. About 68 index cards were prepared. 4 drug samples weighing about 2kg. were collected for supply purposes. A total of 117 folk claims were also collected.

Sikkim

RRCG

The Survey Unit of Gangtok has carried out the Survey work in some areas of East and West Sikkim forests, and collected about 31 plant specimens representing 28 families, 28 genera and 31 species. A total of 220 plant specimens were accessioned and another 40 specimens were mounted for Herbarium. 6 drug samples were added to the Museum. About 12 kg of the plant material was collected for supply purposes. About 6 folklore claims were collected and have also been reported. A tour to CNH, Calcutta was conducted with the collaboration of RRI, Jaipur for the identification of 220 plant specimens.

Uttar Pradesh

AUT

The Survey Unit at Tarikhet has conducted the survey work in Haldwani forest division and Manipuri and Agra social forestry

division and collected about 442 plant specimens. A total number of 1,132 plant specimens were accessioned and about 2,371 specimens mounted for Herbarium. About 442 specimens were poisoned. One drug sample was added to the Museum. About 68 kg. of the plant material of 19 medicinal species was collected for supply purpose. A total of 28 folk-lore claims were also collected.

RRCJu

The Survey Unit at Jhansi has conducted a joint medico-botanical survey tour in collaboration with RRI Gwalior. The areas surveyed are the Panna Hills falling under Bijwara, Kishangarh and Madla forest ranges. During survey work, a total number of 293 specimens representing 85 families, 220 genera and 280 species were collected. About 20 drug samples of important Ayurvedic medicinal plants were collected for Museum. About 300 kg. of the crude drug material consisting of 16 species were collected for supply purposes. A total of about 450 plant specimens were added to the Herbarium and another about 400 specimens were mounted.

West Bengal

RRIC

The Survey Unit at Calcutta has carried out survey work in the central division covering 24 Paraganas and Nadra areas and collected 389 plant specimens representing 98 families, 246 genera and 296 species. A total number of 350 plant specimens were accessioned and another about 350 specimens identified for adding to the Herbarium. About 350 plant specimens were poisoned.

Abstract of Medico-Botanical Survey work conducted by different Units during the year 1985-86

		Total forest areas covered	Total herb sp. added to Herbarium	Total herb sp. added to Museum	Total plants Identified	Total plants awaiting confirmation	Visit made to BSI etc.	Drug Supply	Total Folklore Claims
1	2	3	4	5	6	7	8	9	10
1.	Andhra Pradesh (Vijayawada)	—	636	—	—	—	—	18 Samples of about 40 kg.	—
2.	Arunachal Pradesh (Itanagar)	4	172	36	287	426	—	4 Samples of about 20 kg.	24
3.	Assam (Gauhati)	2	—	—	—	227	—	135 Samples of about 85 kg.	5

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(Contd.)

1	2	3	4	5	6	7	8	9	10
4.	Bihar (Patna)	2	208	14	160	42	—	8 Samples of about 70 kg.	16
5.	Gujrat (Junagarh)	9	316	3	200	175	—	7 Samples of about 26 kg.	5
6.	Himachal Pradesh (Mandi)	—	—	10	427	120	—	6 Samples of about 49 kg.	
7.	Jammu-Kashmir (Jammu)	1	187	18	—	276	—	37 Samples of about 200 kg.	
8.	Karnataka (Banglore)	1	700	175	600	425	BSI Combitore and Mysore	—	—
9.	Kerala (Trivandrum)	2	215	10	237	244	—	95 kg.	151
10.	Madhya Pradesh (Gwalior)	—	404	—	—	—	—	—	—

(Contd.)

1	2	3	4	5	6	7	8	9	10
11.	Maharashtra (Nagpur)	4	99	16	125	76	—	8 Samples about 5 kg.	28
12.	Orissa (Bhubaneswar)	1	303	6	300	300	—	—	18
13.	Rajasthan (Jaipur)	4	922	16	208	155	CNH (cal.) BSI (Allab) NBR (KKN)	4 Samples about 2 kg.	117
14.	Sikkim (Gangtok)	2	220	6	220	7	CNH	1 Sample 12 kg. (fresh)	6
15.	Uttar Pradesh (Jhansi)	3	450	20	125	60	Nil	16 Samples about 300 kg.	—
16.	Uttar Pradesh (Tarikhet)	2	1132	1	—	625	—	25 Samples about 35 kg.	28
17.	West Bengal (Calcutta)	1	350	—	350	100	CNH	—	—
		38	6314	331	3239	3258	—	839	401

CULTIVATION OF MEDICINAL PLANTS

With a view to make available quality Drug material in adequate quantity for research/pharmaceutical purposes, the Council has taken up experimental and large scale cultivation of medicinal plants of Ayurveda and Siddha importance in its four Herbal Farms located at Jhansi (U.P.), Mangliawas (Rajasthan), Pune (Maharashtra) and Ranikhet (U.P.). These Farms have taken up cultivation of about 300 medicinal species and the plantation includes the tropical, sub-tropical, temperate regions, besides exotic ones. These gardens also provide suitable agro-techniques for successful growth of scarcely distributed and threatened plant species.

Experimental cultivation of the plants is undertaken by employing latest available agro-chemical techniques, cytogenetical, hybridisation, agronomical and other scientific methods. The experimental cultivation of *Guggulu* (*Commiphora wightii*) in Mangliawas has provided adequate impetus to consider mass-scale cultivation for the procurement of oleo-gum-resin. Successful propagation of *Kum Kum* (*Crocus sativus*) at Tarikhet is a noteworthy feature in view of its non-habitance to that region, cultivation of this species is still at experimental level, and different parameters are still being employed to further improve the yield/quality of the Saffron in the climatic conditions of Tarikhet. Based on the successful results obtained during experimental cultivation, the Council has also undertaken mass scale cultivation of a few important medicinal plants of Ayurveda and Siddha at these Farms. This mass-scale cultivation is presently restricted to a few acres of land and efforts are being made to enlarge the sphere of cultivation of these much used/demanded plants.

A brief account of the cultivation programme carried out in different herbal gardens of the Council is provided hereunder :—

Regional Research Centre, Jhansi

The Centre is actively engaged in the experimental and mass-scale cultivation of a few selected medicinal plants of Ayurveda and Siddha importance, besides properly maintaining about 200 medicinal species grown in demonstration beds and also in the green house. Out of a total of 45 acres of land under its possession for cultivation purposes, the present cultivation programme is going on in about 16 acres of the reclaimed land. The remaining area of 29 acres is almost barren and full of ditches and hillocks and being considered for cultivation of such medicinal shrubs and trees which do not require much attention for their maintenance and also not endangered of grazing.

Some of the plants grown on mass-scale cultivation are *Guggulu* (*Commiphora wightii*), *Kumari* (*Aloe barbadensis*), *Satawari* (*Asparagus racemosus*), *Sarpagandha* (*Rauwolfia serpentina*), *Ashwagandha* (*Withania somnifera*), *Pritsniparni* (*Uraria picta*), *Bakuchi* (*Psoralea corylifolia*), *Rasna* (*Pluchea lanceolata*), and *Vacha* (*Acorus calamus*) etc.

The plants which are being cultivated on experimental basis and also for demonstration purposes include *Yastimadhu* (*Glycyrrhiza glabra*), *Mandukaparni* (*Centella asiatica*), *Pippali* (*Piper longum*), *Gandhprasarni* (*Paederia foetida*), *Arkapatri* (*Tylophora indica*), *Tulsi-karapura* (*Ocimum klimandischaricum*), *Sadapushpia* (*Vinca rosea*-white and pink variety), *Padmak* (*Prunus cerasoides*) etc. Regular observations are made on these species for their adaptability and growth behaviour etc. Steps are also being initiated to introduce as many plants species of Ayurvedic formulary as possible. The Centre has also initiated steps to increase the yield and active principle content of medicinal plants by adopting suitable agro-chemical techniques and other parameters. The total produce of the garden, during the year was about 260kg of the dry material comprising of 32 different plants and 70kg of the fresh material of 6 medicinal species, besides the production of 6 quintals of fresh *Satawari* and 30 quintals of *Kumari*. The Centre has also supplied about 186.5 kg. of the plant material of 15 species to different research centres of the council.

Guggulu Herbal Farm, Mangliawas (Rajasthan)

Conservation, cultivation and propagation of *Guggulu* on large scale and observing its growth behaviour under different experimental conditions in its 142 acres land is the main activity of this Herbal Farm in Mangliawas near Ajmer. Presently this mass plantation of *Guggulu* is confined to about 1/3rd (44 acres) area of the land. The rest of 2/3rd area is under natural vegetation consisting of various medicinal plant species. Soil is sandy and saline in nature. The soil erosion is of surface gully type. The average rain fall is about 25"-40" and the humidity is low.

The total number of *Guggulu* plants presently under mass cultivation are 18,947 and are properly maintained. 8,533 *Guggulu* cuttings and 972 *Guggulu* plants (raised through cuttings) have been introduced during the year and are under experimental observation for their growth behaviour at different stages. Besides this, 16 other important medicinal species have also been introduced in the garden and the important being cultivated are *Shallaki* (*Boswellia serrata*), *Karanj* (*Caesalpinia bonduc*), *Nimba* (*Azadirachta indica*), *Dadima* (*Punica granatum*), *Amalaki* (*Embelica officinalis*), *Bilva* (*Aegle marmelos*) and *Babbul* (*Acacia nilotica*), Experimental studies have indicated satisfactory sprouting percentage and growth behaviour of *Guggulu* plants raised through cuttings in the month of June than those on different species to study growth, germination, regeneration and adaptation. *Dadima* plants raised from cuttings also showed satisfactory results. A healthy growth has been observed in *Langali* (*Gloriosa superba*), when its tubers were separated and sown. Two exotic species, *Exphorbia anticepheletica* and *Bursera ayndersiana*, introduced in the garden are also growing well. 55.350 kg. of the plant material of 4 medicinal species have been collected during the year, which includes 28.6 kg of oleo-gum-resin. About 22.5 kg. of *Guggulu* was supplied for research purposes.

Jawahar Lal Nehru Medicinal Plants Garden and Herbarium, Pune

This garden has been largely engaged in cultivation of medicinal plants of Ayurvedic and Siddha importance at experimental level. A Museum and Herbarium are also maintained out of a

total of 19 acres of land. The garden's actual experimental cultivation activities are confined to only 9 acres of land as this part of the land is gifted with black cotton soil and the rest is largely composed of murrum rock and hilly. About 350 medicinal plants and a few ornamental and other interesting plants are maintained in the garden. A few important species growing are *Vacha* (*Acorus calamus*), *Gunja* (*Abrus precatorius*), *Vana palandu* (*Urginea indica*), *Yastimadhu* (*Glycyrrhiza glabra*), *Isabgola* (*Plantago ovata*), *Brahm* (*Bacopa monnieri*), *Vandhyavari* (*Vicoa indica*), *Bakuchi* (*Psoralea corylifolia*), *Punarnava* (*Boerhavia diffusa*), *Langali* (*Gloriosa superba*) *Ashwagandha* (*Withania somnifera*), *Mandukparni* (*Centella asiatica*) *Sariva* (*Hemidesmus indicus*), *Japa* (*Hibiscus rosa-sinensis*) etc. The experimental studies carried out have indicated a good potential for the cultivation of *Isabgol* on a large scale. Some plants taken up for large scale cultivation are *Bilva* (*Aegle marmelos*), *Guggulu* (*Commiphora wightii*), *Vibhitaka* (*Terminalia bellerica*), *Bhallataka* (*Semecarpus anacardium*), and *Amalaki* (*Emblica officinalis*) etc. To meet the drug requirements of the different research projects of the Council/Ministry etc, the Garden has supplied 15 kg. of the plant material of eight important medicinal species.

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

The main activities of this garden is to study the possibilities of cultivation of medicinal plants of Ayurveda and Siddha importance, drawn from wild and other sources by studying their adaptability, growth, flowering and fruiting etc., in the climatic conditions of Ranikhet. The garden has a total area of about 7.89 acres including the Saffron farm. Presently, the garden is laid out in 2.5 acres of land by terracing the slope. About 190 medicinal species comprising of herbs, shrubs, trees and climbers etc. are maintained and a few species have been subjected to experimental trials and regular

observations in respect of their growth behaviour were observed. Some of the important species are *Pippali* (*Piper longum*), *Yastimadhu* (*Glycyrrhiza glabra*), *Akarkarabha* (*Anacyclus pyrethrum*), *Kumari* (*Aloe vera*), *Tagara* (*Valeriana wallichii*) etc. Special measures/techniques were adopted for evolving of an ideal agro-technique for propagation of these species. Special attention was paid to the cultivation of *Yastimadhu* and *Rudraksha* (*Elaeocarpus ganitrus*). A satisfactory vegetative growth has been observed in both these plants.

Certain special techniques were also undertaken to increase the number of plants per Unit area under experimental cultivation and also their active principle contents. Exotic plants such as *Pudina* (*Mentha arvensis*), and *Calandula offinalis* have also been successfully raised.

Saffron Experimental Farm

The Saffron research Farm is situated in a Western slope of Ranikhet at an altitude of 1,010 meters. The main activities of the farm is experimental cultivation of Saffron and study of its growth behaviour etc. A considerable success has been obtained in propagation of Saffron by adopting different agro-chemical technique etc. The experimental activities are confined to about 1.53 acrea of the land about 5,45,109 corms of different sizes in about 560 beds are growing there. About 1,551 flowers were collected which yielded 12 gm of dry saffron consisting of stigma and style.

A few of the important medicinal plants under cultivation in the different herbal gardens, that are either extensively or largely used or sparingly available are listed hereunder :—

- Akarkarabha* (*Anacyclus pyrethrum*)
- Amalaki* (*Embelica officinalis*)
- Arkapatri* (*Tylophora indica*)
- Aragvadha* (*Cassia fistula*)
- Arjuna* (*Terminalia arjuna*)
- Asoka* (*Saraca asoca*)
- Asthisamhara* (*Cissus quadrangularis*)

Aswagandha (Withania somnifera)
Atibala (Abutilon indicum)
Atmagupta (Mucuna pruriatilis)
Bakuchi (Psoralea corylifolia)
Bhallataka (Semecarpus anacardium)
Bharangi (Clerodendrum serratum)
Bibhitaka (Terminalia belerica)
Bilva (Aegle marmelos)
Bimbi (Coccinia indica)
Brihadela (Amomum subulatum)
Campaka (Michelia champaca)
Citraka (Plumbago zeylanica)
Danti (Baliospermum montanum)
Daruharidra (Berberis aristata)
Dhataki (Woodfordia floribunda)
Eranda (Ricinus communis)
Ghritakumari (Aloe barbadensis)
Goksura (Tribulus terrestris)
Guduchi (Tinospora cordifolia)
Guggulu (Commiphora mukul, Commiphora beryii)
Gunja (Abrus precatorius)
Haridra (Curcuma longa)
Haritaki (Terminalia chebula)
Isabgol (Plantago ovata)
Japa (Hibiscus rosa-sinensis)
Jayanti (Sesbania sesban)
Kakodumbara (Ficus hispida)
Kampillak (Mallotus philippinensis)
Kanchanar (Bauhinia variegata)
Kant ikari (Solanum xanthocarpum)
Karanja (Derris indica)
Khadira (Acacia catechu)
Kuberakshi (Caesalpinia bonduci)
Kutaja (Holarrhena antidysenterica)
Langali (Gloriosa superba)
Lata kasturi (Hibiscus abelmoschus)
Madanphal (Xeromorphis spinosa)
Madhuyasti (Glycyrrhiza glabra)

Mandookaparni (Centella asiatica)
Palasa (Butea monosperma)
Parijata (Nyctanthes arbortristis)
Parpataka (Fumaria parviflora)
Pasanbheda (Bergenia ciliata, Bergenia ligulata)
Sadapushpi (Vinca rosea var, white and pink)
Salaparni (Desmodium gangeticum, Desmodium laxiflorum)
Sallaki (Boswellia serrata)
Sankhapuspi (Evolvulus alsinoides, Convolvulus pluricaulis, Clitoria ternatea)
Sarpagandha (Rauwolfia serpentina)
Satavari (Asparagus racemosus)
Shirish (Albizia lebbbeck)
Svetacandan (Santalum album)
Sveta sariva (Hemidesmus indicus)
Syonaka (Oroxylum indicum)
Tulasi (Ocimum sanctum)
Vaca (Acorus calamus)
Varuna (Crataeva nurvala)
Vasa (Adhatada zeylanica)

The following crude drugs (quantity indicated against each) were made available by these cultivation Centres to different Institutes/Centres of the Council and PLIM, Ghaziabad for research purposes :

<i>Aragvadha (Cassia fistula)</i>	Fruit 10 kg (dry)
<i>Arjuna (Terminalia arjuna)</i>	Bark 10 kg (fresh)
<i>Arkapatri (Tylophora indica)</i>	Leaves 5 kg (Fresh)
<i>Ashwagandha (Withania somnifera)</i>	Root 2 kg (dry) 5 kg (Fresh)
<i>Bakuchi (Psoralea corylifolia)</i>	Seed 3 kg (Fresh)
<i>Bala (Sida cordifolia)</i>	Whole Plant 5 kg (fresh)
<i>Bhringraj (Eclipta alba)</i>	Leaves 5 kg (fresh)
<i>Bibhitaka (Terminalia belerica)</i>	Fruit — 5 kg (dry)
<i>Bilva (Aegle marmelos)</i>	5 kg (dry) 5 kg (fresh)
<i>Erand (Ricinus communis)</i>	Root — 8 kg (Dry)
<i>Gaduchi (Tinospora cordifolia)</i>	Stem — 40 kg (Fresh)
<i>Guggulu (Commiphora wightii)</i>	Oleo-gum-resin — 20.5 kg

<i>Gokshra (Tribulus terrestris)</i>	Whole plant — 6 kg (dry) Seed — 2 kg (fresh)
<i>Jati (Jasminum grandiflorum)</i>	Leaves — 3 kg (dry)
<i>Kalmegh (Andrographis paniculata)</i>	Whole plant — 2 kg (dry)
<i>Kantkari (Solanum xanthocarpum)</i>	Whole Plant — 16 kg (dry) 15 kg (fresh)
<i>Karpura tulsi (Ocimum kilimandscharicum)</i>	Leaves — 15 kg (Fresh)
<i>Kataphala (Myrica nagi)</i>	Stem — 400 gm (dry)
<i>Langali (Gloriosa superba)</i>	Root — 560 gm (dry) Fruit 0.5 kg (dry)
<i>Lodhra (Symplocos racemosa)</i>	Stem bark—0.5 kg (dry)
<i>Madanphala (Xeromphis spinosa)</i>	Fruit — 0.5 kg (dry)
<i>Mandukparni (Centella asiatica)</i>	Whole plant—500gm (dry) Leaves—5 kg (fresh)
<i>Manjistha (Rubia cordifolia)</i>	Stem—370gm (dry) 500gm (dry)
<i>Nimba (Azadirachta indica)</i>	Leaves — 16 kg (dry) Bark—5 kg (fresh) Fruit—1 kg (dry)
<i>Nirgundi (Vitex negundo)</i>	Leaves—3 kg (dry) 30 kg (fresh)
<i>Punarnava (Boerhaavia diffusa)</i>	Root—10 kg (fresh)
<i>Rasna (Pluchea lanceolata)</i>	Root—4 kg (dry) Leaves—2 kg (fresh)
<i>Sarpunkha (Tephrosia purpurea)</i>	Root—2 kg (fresh)
<i>Satavari (Asparagus racemosus)</i>	Root—5 kg (fresh)
<i>Sati (Hedychium spicatum)</i>	Rhizome—470gm (dry)
<i>Sirisa (Albizia lebeck)</i>	Stem bark 5 kg (dry)
<i>Tagara (Valeriana wallichii)</i>	Whole plant—5 kg (dry)
<i>Vacha (Acorus calamus)</i>	Root 5 kg (dry)
<i>Vansa (Bambusa bambos)</i>	Young aerial parts—2 kg (dry)
<i>Vasa (Adhatoda zeylanica)</i>	Whole plant—15 kg (dry) Leaves—20 kg (fresh)

Abstract at a glance

1. Total number of medicinal species cultivated both on experimental/mass scale cultivation. 300 approximately
2. Total produce (in kg) of the herbal farms, made during 1985-86 consisting of various parts of about 43 species. 3,978.380 kg (including 37.16 quintals of fresh material)
3. Total drug supplied (in kg) by the Herbal farms to different Institutes/Centres of the Council for research purposes. 344.240 kg including 197 kg of fresh material

PHARMACOGNOSTICAL RESEARCH STUDIES

PHARMACOGNOSTICAL RESEARCH STUDIES

The Pharmacognostical Research Units functioning at Calcutta, Delhi, Lucknow, Jammu and Pune, have taken up the pharmacognostical studies on the following 12 drugs used in Ayurveda and Siddha Systems of Medicine in the treatment of various ailments. The different units during the previous years have carried out and completed pharmacognostical investigations on about 140 drugs.

1. *Elavaluka* (*Prunus avium* Linn.) —Bark and leaf
2. *Devdaru* (*Cedrus deodara* Roxb.) —Leaf and gum
(authentic sample),
wood (Market sample)
3. *Gajapipali* (*Scindapsus officinalis* Schot) —Fruit
4. *Jivanti* (Market sample) —Root and stem
5. *Kadamba* (*Anthocephalus cadamba* Miq.) —Bark and leaf
6. *Kapittha* (*Feronia limonia*) —Leaf, bark and fruit
7. *Mudga* (*Vigna radiata* Linn.) —Leaf, fruit and seed
8. *Mundi* (*Sphaeranthus indicus* Linn.)—Leaf
9. *Patala* (*Steriospermum suaveolens* DC.) —Root and fruit
10. *Rishbhaka* (Market sample) —Root
11. *Sala* (*Shorea robusta* Gaertn. f.) —Bark and resin
12. *Tal* (*Borassus flabellifer* Linn.) —Root, flowers and fruit

The object of the study is to evolve standards for single drugs so that genuine and authentic drug material can be made available for Research and Pharmaceutical Industry. Study in these areas

covered elaboration of details in respect of their origin, botanical identification and correct determination, Ayurvedic nomenclature including synonyms together with properties, botanical description and key characters. The study includes the detailed structural examination of the plant together with changes in the content of the active principles depending on ecological and adaptive variations. This comprehensive task includes study of different criteria, viz., morphology of crude drugs including the sensory characters, cell and tissue structures both qualitative and quantitative, cell contents, preliminary phytochemical analysis, chromatographic studies, identification of the chemical constituents like alkaloids, steroids and terpenoids, phenols, tannins, saponins, flavonoids and proteins etc., fluorescence behaviour of different extracts of the drug materials, physical constant values including ash and extractive values, dry matter and moisture content, total acidity and pH of the cell sap, specific gravity, swelling factors, estimation of sugar, nitrogen, protein, fats and oils, chlorophyll of the crude drugs. The other important feature of this study includes the analysis of powdered drugs which is of immense value to check adulterations.

These Chemo-taxonomic studies have resulted into evolving of very important diagnostic characters which would be helpful for laying out the pharmacopoeial standards of Ayurvedic drugs. The data also collectively forms a good base for the proper and systematic identification of the genuine samples from its adulterants and substitutes.

CHEMICAL RESEARCH STUDIES

CHEMICAL RESEARCH STUDIES

Phyto-chemistry is an important branch of drug research which has made significant contribution to the development of several plant products and their fractions. The fractions obtained during these investigations have shown definite efficacy during the course of pharmacological investigations and clinical studies. The extraction supply units have been preparing different extracts to be used by different pharmacological/toxicological and clinical units of the council. The various chemical units carrying out these studies are located at Calcutta, Delhi, Lucknow, Hyderabad, Varanasi, Madras and Trivandrum. A brief resume of the work carried out by these Units/Institutes during the reporting period is reported under :—

1. *Agnimantha (Premna integrifolia)* CSMDRIA, Madras

The air dried and coarsely powdered plant material procured from the local market was extracted with petrol, chloroform and alcohol and the respective extracts were freed of the solvent on water bath and last traces *in vacuo*. The residue obtained from petrol extract on column chromatography over silica gel and eluation with benzene gave a compound, m.p. 82-83° and was characterised as n-triacontanol. Later eluations with benzene resulted in a gum, crystallised from methanol m. p. 133-4° and found to be identical with β -sitosterol in all respects.

The residue from the alcohol extract was extracted with ethyl acetate followed by n-butanol. The later extract was concentrated *in vacuo* and the residue left was dissolved in hot absolute alcohol. Concentration afforded a yellow solid, washed with dry acetone, m.p. 205-10°. It gave red colour for Shinoda test suggesting the presence for flavonoid skeleton. It gave positive colour reactions with Molisch test and with anthrone and sulphuric acid

indicating it to be a glycoside. It had the molecular formula $C_{26}H_{28}O_{14}$ and UV at 274 and 333 nm is identical with that of apigenin-C-glycosides. It was compared with an authentic sample of 6-C-B-D-glucopyranosyl-8-C-B-D-xylopyranosyl apigenin and found to be identical in all respects.

2. Vandhyavari (*Vicoa indica*)

CSMDRIA, Madras

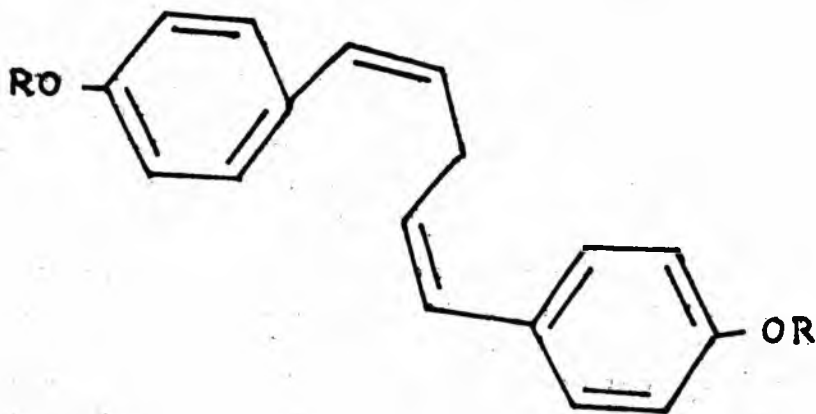
Extensive phytochemical screening of *Vicoa indica* resulted in the isolation of a monoterpene compound in minor quantities and its spectral characteristics are discussed to establish a tentative structure. It had strong IR absorption for hydroxyl at 3320 cm^{-1} (Broad.) HNMR displaced two sharp singlets for two tertiary methyls at 0.90 and 1.00; a quartet 1 : 3 : 3 : 1 centered around 3.50 for a methylene and two unresolved doubles at 4.00 for CHOH proton.

Acetylation of the compound with acetic anhydride in pyridine at room temperature yielded a gum which could not be crystallised. Its molecular formula was $C_{11}H_{20}O_4$, m/z 254 (M^+) and indicated clearly that it was a diacetate.

3. Rasna bheda (*Alpinia galanga*)

Ch. RU, Calcutta

Chromatography of the concentrated chloroform extract of the plant afforded a new phenolic constituent which has been



III R = H

IV R = $COCH_3$

isolated as its diacetate. Based on the structure of the diacetate (IV) the structure of the natural products has been formulated as di-(p-hydroxy-cis-styryl) methane (III).

4. Vibhitaki (*Terminalia bellerica*)

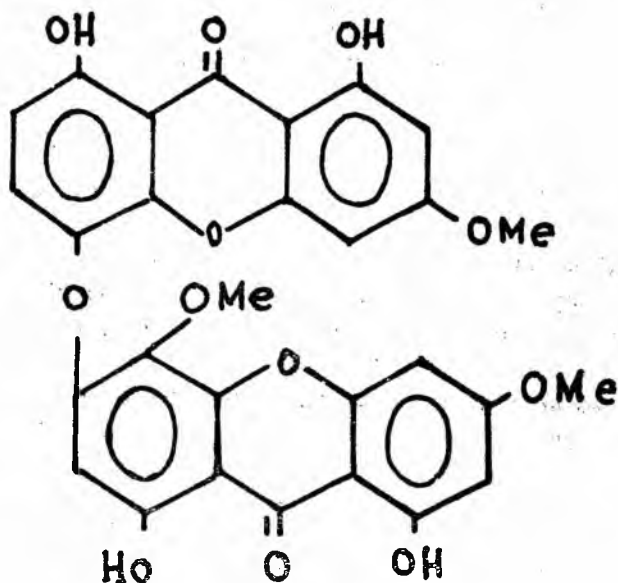
Ch. RU, Varanasi

The petroleum ether extract of the fruits furnished mixture of some interesting compound. Efforts are being made to isolate them in pure state and characterise them by chemical degradation and detailed spectral analysis.

5. Kiradatika (*Swertia chirata*)

Ch. RU, Calcutta

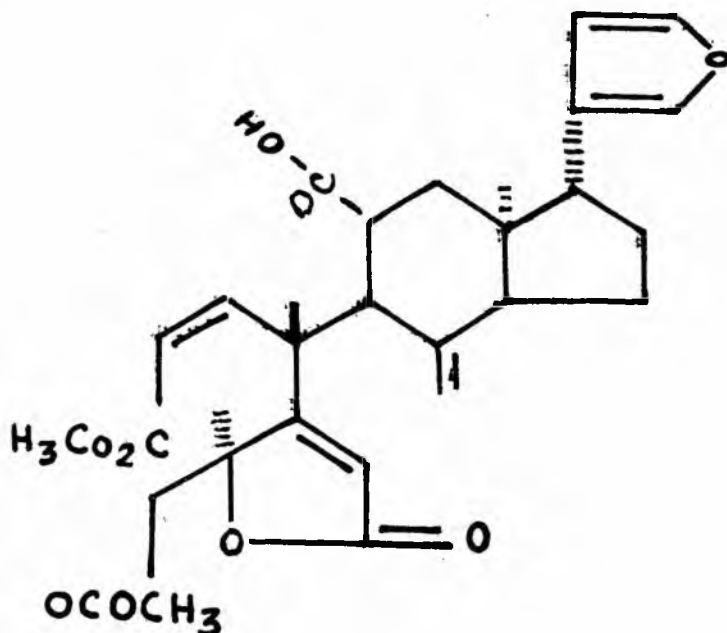
An interesting bis-xanthone designated chiratanian has been isolated from the petrol extract of *Swertia chirata*. The structure of the compound has been assigned as below from detailed studies of its UV, IR, IHNMR and mass spectral data.



6. *Heribera (Aphanamixis polystachya)*

Ch. RU, Calcutta

The structure of the new bitter principle isolated from *A. polystachya* has been deduced as below from detailed analysis of its spectral data.

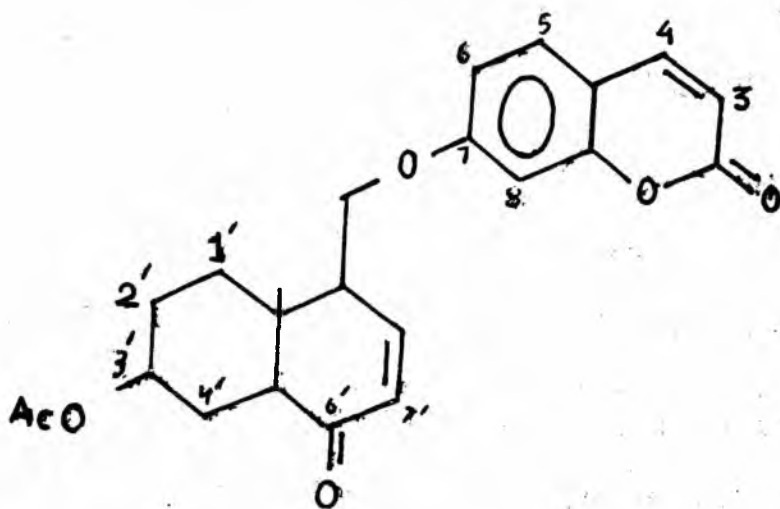


7. *Hingu (Ferula foetida)*

Ch. RU, Calcutta

From the concentrated ether extract of the plant (solid gum) seven compounds have been isolated. One of the compounds has shown to have the structure as shown hereunder from analysis of its spectral data. Comparison of the spectral data of this compound with those reported for Ferocolicin (isolated from *Ferula conocaulla*) suggest their identity, although direct comparison of the

two compounds could not be made yet.



8. *Kapitha (Feronia limonia)*

Ch. RU, Hyderabad

The fruits were extracted repeatedly with methanol and a semi-solid was obtained on distillation under reduced pressure. It gave colour test for glycoside, anthocyanin, phenol and for terpenoid. TLC examination in solvent system chloroform and ethylacetate 7 : 3 indicated the presence of six compound (four are major and two are minor). Separation of these fractions are in progress.

Part of the methanolic extract was taken separately and successively extracted with petrol, benzene and chloroform. In petrol fraction, one pure compound having m.p. 68-70° was obtained. It gave test for terpenoids. Further identification is in progress.

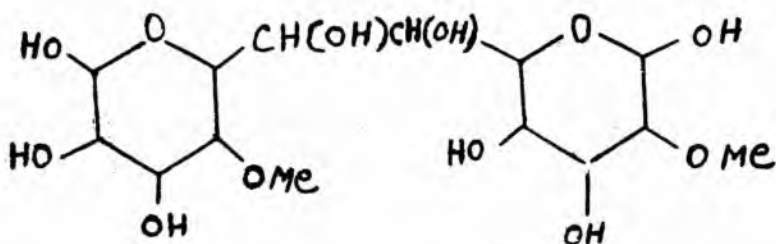
Work on methanolic extracts of stem and root are under progress and isolation of coumarin is under process.

9. *Lata-karanja (Caesalpinia crista)*

Ch. RU, Calcutta

From the concentrated methanolic extract of the defatted fruit shells of *C. crista*, a new polyhydroxy compound has been isolated. The structure of the compound has been formulated as

below from detailed analysis of its spectral data.



10. Shallaki (*Boswellia serrata*)

Ch. RU, Hyderabad

The composition of the essential oil from the gum oleoresin of *B. serrata* has been studied by using both TLC and GLC techniques. The GLC analysis resulted the presence of 36 components. In all, eleven components have been identified. Of the eleven component identified, seven are reported for the first time in this oil. Among them, nine are monoterpene hydrocarbons and two are light oxygenated components. It is evident, from the quantitative determination that α -pinene is the major constituent of the oil followed by β -pinene.

11. *Edgeworthia gardneri*

Ch. RU, Calcutta

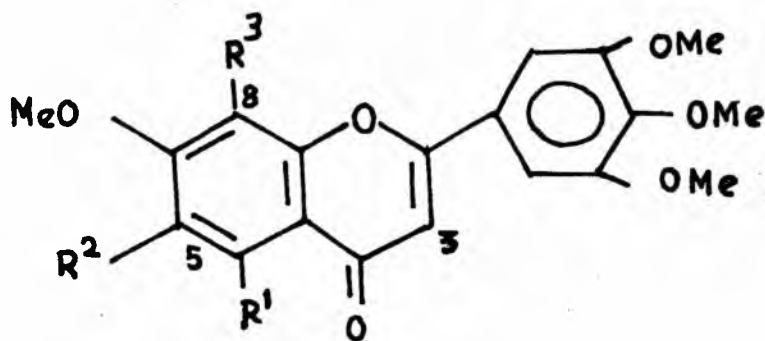
Structure elucidation of the compounds obtained from benzene and benzene-ethylacetate (4 : 1) fractions during column chromatography of the petrol extract of *E. gardneri* is underway.

12. Nirgundi (*Vitex negundo*)

Ch. RU, Calcutta

Column chromatography of the petrol extract of the leaves of *V. negundo* afforded two compounds which have been characterised as 5-hydroxy-7, 3', 4', 5',-tetramethoxy flavone (I) and 5,6,7,8,3', 4',5',-heptamethoxy flavone (II) from studies of their spectroscopic

data and degradative experiments.



I : $R^1=OH$, $R^2=R^3=H$

II : $R^1=R^2=R^3=OMe$

13. Parijatha (*Nyctanthes arbortristis*)

CSMDRIA, Madras

Chemical examination of the seeds of *Nyctanthes arbortristis* resulted in the isolation of two new iridoid glucosides arbortristoside A and B. Previous work on the leaves of *Nyctanthes arbortristis* reported the presence of two flavanol glycosides astragalins, nicotiflorin, mannitol, β -amyrin, β -sitosterol, hentriacontane and benzoic acid. Chemical investigation of the leaves has shown the presence of an iridoid glucoside.

Coarsely powdered leaves were extracted exhaustively with hexane, ethyl acetate and alcohol successfully in an aspirator bottle by cold percolation method.

Hexane extract was chromatographed through a column of silica gel. The fractions did not yield any useful compound. Ethyl acetate extract was chromatographed over silica gel. Ethyl acetate and ethyl acetate alcohol mixtures (9 : 1) yielded a gum in good yield. It was purified by repeated chromatography over silica gel. Ethyl acetate eluates yielded an amorphous hygroscopic powder. The compound answered the test for sugar.

The compound was refluxed with acetic anhydride and the acid hydrolysis of the glycoside resulted in a spot corresponding to d-glucose on paper. The alkaline hydrolysis of the glycoside and

further purification by chromatography resulted certain crystals which were identified as trans-cinnamic acid by comparison with an authentic sample.

The iridoid glucoside from leaves is found to have anti-malarial activity. More of this compound is being isolated for determining its anti-malarial activity and for its structure elucidation.

14. Parpataka (*Fumaria indica*) Ch. RU, Varanasi

The seeds, stem, bark, leaf and roots of *Fumaria indica* were extracted separately. Individual extracts were proceeded for isolation of active principles.

Further work in this regard is in progress.

15. Madayantika (*Lawsonia inermis*) Ch. RU, Hyderabad

In view of the thermalgesic activity of one of the extracts of *Lawsonia inermis* roots (TNR/LIR/CH) the said root extract was sent to Pharmacology Unit, Grant Medical College, Bombay to carry out further studies. The chemical work on this plant is discontinued.

16. Rohitaka (*Tecomella undulata*) Ch. RU, Varanasi

The continuation of the previous work on, the bark of the plant afforded two compounds. Efforts are being made to find out their final structure.

17. Saka (*Tectona grandis*) Ch. RU, Varanasi

Several compounds have been isolated so far. Among them TR-1 was characterised as Lapachol on the basis of physico-chemical methods. It showed significant anti-ulcer activity in experimental animals. Another compound TR-2 is under process of identification. Remaining compounds isolated from this source are also under study so that they can be characterised as early as possible.

18. *Vasa (Adhatoda vasaka)*

Ch. RU, Hyderabad

The flowers, leaves, stem and roots are collected in sufficient quantity and repeatedly extracted with methanol. In leaves the alkaloid vasicine was obtained and its conversion into Vasicinone by phyto-chemical oxidation is in progress. The isolated compound will be sent shortly for pharmacological testing,

The work on coumarins and phenolic compounds obtained from methanolic extract of stem is in progress.

19. *Amlavetasa (Garcinia indica)*

Ch. RU, Hyderabad

The shade dried ground bark was cold extracted successively with pet. ether (60-80°), chloroform and acetone. All these extracts were concentrated under reduced pressure.

Petroleum ether extract which gave positive ferric chloride test and also L.B. test, was put on silica gel column and eluted with P.E. (60-80°) containing increasing amount of ethyl acetate. Eluents were checked by TLC. Eluents with 2% ethyl acetate yielded a crystalline light yellow compound and gave a colour reaction with ferric chloride. Further investigation of this compound is in progress.

The acetone extract on concentration gave a gummy mass which after repeated precipitation from ether, finally gave from ethanol solution an yellow solid which appears to be pure on TLC. Further work is in progress.

20. *Atlanta racemosa*

CSMDRIA, Madras

In earlier reports, the isolation and various effects to elucidate the structure of compound coumarin isolated from *A. racemosa* have been discussed. The structure of compound C has been established by spectroscopic as well as degradation methods. Finally it was confirmed by X-Ray crystallography.

21. *Bougainvillea glabra*

CSMDRIA, Madras

Bitacyanin and flavonoids have been reported from the flowers, The dried and powdered leaves of the plant with pink bracts were extracted with hexane. The total extract was chromatographed over silica gel. Elution with hexane benzene 1 : 1 gave a mixture of triterpenes which could not be separated. Elution with same solvent mixture gave octacosanol (m.p. 83°). Further elution with benzene gave β -sitosterol (m.p. 134°).

The chloroform extract on column chromatography over silica gel yielded octacosanol, β -sitosterol and β -sitosterol, B-D, glucoside (m.p. 284°).

The leaves were finally extracted into 10% ethanol. The alcoholic extract was concentrated into a syrup. It answered for phenol, glycoside and alkaloid. It was extracted into acetone. The acetone soluble portion was chromatographed over silica gel. β -sitosterol, B-D glucoside has been isolated and identified. The identification of other constituents is in progress.

22. *Bougainvillea spectabilis*

Ch. RU, Calcutta

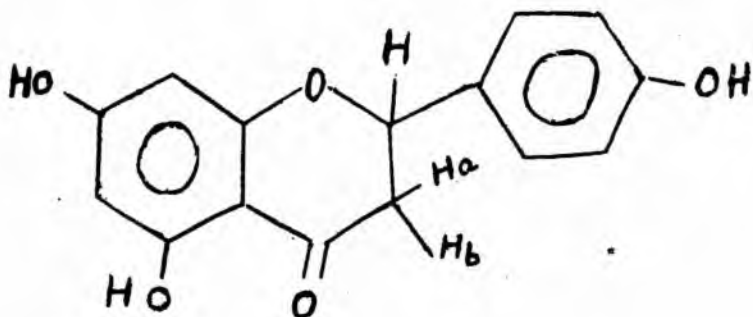
The water soluble fractions (50 mg. each) of the different extractives obtained from the alcoholic extract of the fresh leaves of *B. spectabilis* were tested for hypoglycaemic effect separately in STZ induced diabetic rats and were shown to be responsible for blood sugar lowering effect. Attempts are being made to isolate and characterise the water soluble active ingredients.

23. *Gardanther a triflora*

Ch. RU, Calcutta

From the petrol extract of *G. triflora* three compounds have been isolated. Identification of the compounds by application of modern spectro-scopic methodologies and chemical reactions are underway.

Chemical investigation of the ethyl acetate extract of defatted *J. gossypifolia* yield a flavanone which has been assigned the following structure from analysis of its spectral data. Literature survey revealed that this compound may be identical with Naringenin. Direct comparison could not, however, be made due to lack of an authentic sample of Naringenin.



PHARMACOLOGICAL RESEARCH STUDIES

PHARMACOLOGICAL RESEARCH STUDIES

The Pharmacological studies are helpful to evaluate actions and potentials indicated for drugs in Ayurveda. These studies carried out in the past have helped in development of various Ayurvedic therapies. The report presents the work carried out during the reporting period by various Pharmacological, Toxicological Units and Central Research Institutes of the Council located at Bombay, Calcutta, Jodhpur, Lucknow, Jhansi, Rewa/Gwalior, Trivandrum, Varanasi, Patiala and Cheruthuruthy. A number of single drugs, compound formulations and coded drugs were investigated *in vivo* and *in vitro* experimental models for routine pharmacological screening as well as for specific effects e.g. analgesic, antipyretic, anti-inflammatory, anti-histaminic, CNS depressant, hypolipidaemic, cardiovascular, anti-ulcer and adaptogenic effects etc. Acute and sub-acute toxicity studies were also carried out on certain drugs during this period. A brief review of the work carried out by these units is reported hereunder :—

1. Aregyavardhini

Ph. RU, Bombay

This is an Ayurvedic compound formulation which was studied for its effect on the general behaviour in mice but as such it did not show any untoward effect of change in the behaviour of mice. It showed anti-cholinergic activity which was not reversible for a long duration on frog rectus abdominus muscle preparation.

2. Brahmi rasayana

Ph. RU, Jodhpur

It was investigated for its effect on central nervous system on rats and mice using various parameters such as pentobarbitone narcosis, maximal electroshock seizures, leptazole induced seizures analgesic activity, motor coordination and haloperidol induced catalepsy. It is interesting to note that *Brahmi rasayana* induced

significant potentiation of pentobarbitone narcosis, afforded protection against maximal electroshock seizures, protected 50% of animals against leptazole seizures, possessed anti-nociceptive and had no motor incoordination.

3. Chandraprabha vati

Ph. RU, Bombay

It is an Ayurvedic compound formulation. It was studied for its effect on general behaviour in mice and no significant change was observed. It exhibited anti cholinergic activity of reversible type on frog rectus abdominus muscle preparation.

4. Dashamoolarishta

IIP. Cheruthuruthy

It is reputed to be effective in respiratory disorders, general weakness, anorexia and in neurological disorders. Hence it was considered to evaluate it for its psycho-neuro-pharmacological and adaptogenic activities. It was found non-toxic upto the dose of 60 ml./kg., It has no apparent effect on CNS in mice. It did not effect pentobarbitone sleep in mice significantly. It did not affect muscle tone and balance in mice. It did not modify d-amphetamine stereotypy. It did not affect exploratory behaviour in mice. It did not modify reserpine induced ptosis, catatonia and sedation did produce significant antagonism of hypothermia. It did not affect the duration of mice immobility. It did not protect mice against electro-convulsions. However, it protected mice against pentylene-tetrazol convulsions, and also prolonged latency of onset of convulsions and death. It did not afford protection to mice against strychnine convulsions. No analgesic activity was observed with this compound. It did not increase the duration of acute symptoms in mice nor did it afford protection against carbontetrachloride hepatotoxicity to mice. It could not afford protection against cobra and russel viper venom.

5. Gajapippali (*Scindapsus officinalis*)

Ph. RU, Trivandrum

The decoction of fruit of this plant was studied for its effect on frog heart, analgesic effect, anti-diarrhoeal activity, anti-spasmodic effect. At dose levels varying from 10 mgm. to 1000 mgm., it

showed the dose dependant cardiac arrest followed by positive inotropic effect. Prior administration of adrenaline did not prevent the transient heart block. Further studies are in progress.

With dosages upto 10 gm./kg., the decoction failed to exhibit any analgesic effect through tail flick method in albino rats. Its anti-diarrhoeal effect was studied in albino rats through entero-pooling effect of various diarrhoeal agents such as castor oil, magnesium sulphate solution etc. The decoction upto 15 gm /kg. was administered orally in rats 30 minutes prior to the administration of diarrhoeal agents. Interpooling effect was noted by observing the weight increase in small intestine as compared to that of untreated controls. The study is continuing. The anti-spasmodic effect of decoction was investigated in rats and mice using the charcoal meal test. The studies are continuing.

6. Gokshuradi guggulu

Ph. RU, Bombay

It is an Ayurvedic formulation procured from Zandu Pharmaceuticals in tablet form. It was screened for its general behaviour in mice, sodium barbitone hypnosis, analgesic activity (writhing test) and studies on frog rectus abdominus muscle.

The tablets were titrated into fine powder and dissolved in distilled water. Male albino mice weighing between 20 to 25 gm. were divided into 9 groups of 6 mice each. The different groups were administered dosages varying from 10 mgm./kg. to 6,400 mgm./kg. body weight orally. The animals were observed for 24 hours but no untoward effects were observed upto 1600 mg./kg. body weight. Only with higher dosages like 3,200 and 6,400 mg./kg. the animals showed less motility than others.

During pentobarbitone induced sleeping time studies in mice, the drug was administered in dosages from 50 mg./kg. upto 6,400 mg./kg. orally. These studies showed dose dependant increase in sleeping time.

No analgesic effect was forthcoming with this drug. On isolated frog rectus abdominus muscle preparation, the drug had no *per se*

effect on muscle but blocked the acetylcholine induced response, which was reversible.

7. Jalkarna (*Lipia nodiflra*)

Ph. RU, Bombay

The ether, acetone and benzene extracts were administered orally in a dose of 250 mg./kg. in guinea pigs to study their anti-asthmatic activity. Their effect on histamine induced broncho-spasm was recorded for a period of 5 hours. None of the extracts showed any protection against histamine induced broncho-spasm.

8. Kapitha (*Feronia limonia*)

Ph. RU, Bombay

The dried fruit was obtained locally which was powdered and sequentially extracted with petroleum ether, chloroform and methanol solvents. The petroleum ether extract showed *per se* contraction which was blocked by atropine on isolated guinea pig ileum. This effect was found to be reversible. It showed *per se* fall in blood pressure in anaesthetised cats which was blocked by atropine.

The chloroform extract has *per se* no effect upto 400 microgram/ml. but this concentration blocked the acetylcholine response which was reversible. With 800 microgram/ml., the extract showed *per se* contraction which was not blocked by atropine. It showed no *per se* effect but blocked the rise and fall of adrenaline response.

The methanol extract showed *per se* relaxation followed by contraction but the recovery from the contraction is slow and this effect is dose dependant. The acetylcholine response remains unaffected. The methanol extract showed dose dependant relaxation of tissues with contraction which receded after washing. This effect was partially decreased by mepyramine maleate. On frog rectus abdominus preparation, the methanol extract caused no contraction upto 5 mgm./ml. dosages but with 8 mg./ml. and 10 mg./ml. there was contraction in muscles.

Responses of acetylcholine were unaffected initially, but with higher dosages they showed partial blocking effect which was

reversible. This extract has *per se* caused rise in blood pressure which gets partially blocked by phenoxybenzamine.

Ph. RU, Bombay

Five different extracts e.g (i) EL/Root/BM/MechH, (ii) FL/F/BM/MeoH, (iii) FL/L/BM/A/Colides, (iv) FL/Bark/BM/MoH and (v) FLIL/ BM/Neutral were investigated for their effect on cat blood pressure and respiration, analgesic activity, anti-inflammatory effect and acute toxicity. None of the extracts in a dose as high as 250 mg./kg administered intra-duodenally showed any changes in blood pressure and respiration nor has altered the response of standard drugs like adrenaline, noradrenaline, acetylcholine and histamine. None of the extracts showed any anti-writhing effect in mice, indicating lack of analgesic effect. None of the extracts could inhibit carragenin induced oedema significantly in male rats, indicating the absence of anti-inflammatory activity.

The acute toxicity study was carried out in male mice. All extracts were administered in three doses i.e. 500 mg./kg. 1 gm./kg. and 2 gm./kg. orally. The animals were observed continuously for 3 hours, intermittently for 12 hours and thereafter at the end of 24, 48 hours and upto 7 days, for behavioural changes if any and mortality. None of the extracts in the doses tried showed any toxic effects and mortality.

9. Karanja (*Derris indica*)

Ph. RU, Trivandrum

The decoction of its bark was tested in albino rats against electro-shock convulsions to evaluate its anti-convulsant activity. 20 gm./kg. dosage of decoction was administered orally an hour prior to shock. Protection from convulsions was observed. At this dose level, the drug failed to show any anti-convulsant activity.

10. Madhumalati (*Heptage bengalensis*)

Ph. RU, Bombay

The dried leaves of the plant were powdered and sequentially extracted with petroleum ether, chloroform and methanol extracts. The petroleum ether extract when studied for its effect on blood

pressure and respiration in anaesthetised cats, it caused sharp fall in blood pressure and apnoea. This effect was partially blocked by atropine but at higher dosages, the fall in blood pressure was not blocked by propranolol nor direct on vascular smooth muscle. On frog rectus abdominus muscle preparation, no *per se* effect was observed with petroleum, chloroform and methanol extracts.

11. Madhaviata (*Hiptage madablota*)

IIP, Cherutharuthy

The chloroform extract and cold aqueous infusion of leaf and ethanol extracts of the roots were screened for different pharmacological studies. Both the extracts did not cause any marked effect on CNS during the course of acute toxicity studies. While the ethanol extract of roots did produce mild CNS depression, the ethanol-extract of roots prolonged pentobarbitone induced sleep and also increased the latency of onset of sleep in mice. The cold aqueous infusion of leaves could not alter the duration of pentobarbitone induced sleep but increased the latency of onset. The ethanol extract of roots and cold aqueous infusion from leaves did not show any significant anti-depressant activity.

None of the extracts demonstrated any antiparkinsonian activity. No anti-convulsant effect was observed with any of the extracts. Both the ethanol extract of roots and cold aqueous infusion of leaves significantly decreased the number of writhings during acetic acid induced writhing test. It failed to raise the threshold of tail flick response in mice during radiant heat method. No anti-inflammatory effect was forthcoming with ethanol extract of roots.

12. Madayanti (*Lawsonia inermis*)

Ph. RU, Bombay

Five different extracts i.e. (i) TNR/LIR/P, (ii) TNR/LTR/CH, (iii) CVR/LIF/P, (iv) CVR/LIF/CH and CVR/LIF/M were investigated for their analgesic activity, effect on blood pressure and respiration and acute toxicity studies. Out of five extracts, TNR/CH in a dose of 250 mg./kg. orally showed anti-writhing effect. However, further studies are in progress.

None of the extracts in a dose of 250 mg./kg. administered

intra-duodenally showed any changes in blood pressure and respiration nor these have altered the responses of standard drugs like adrenaline, nor-adrenaline, acetylcholine and histamine. None of the extracts upto a dose of 2 gm./kg. orally when administered to male mice, showed any toxic effects or mortality upto 7 days of their administration.

13. Tala (*Borassus flabellifer*)

IIP, Cheruthuruthy

Different extracts were prepared from the powdered root of the plant for their pharmacological studies. The extracts were administered intraperitoneally mixed with 3% Tween 80. These extracts were studied for finding out the acute toxicity in mice and LD-50 was also calculated. No untoward effects were noted except that the cold aqueous infusion produced CNS depression at a higher dose level. No significant hypnotic potentiation effect was forthcoming with the fractions used in mice. Similarly no significant anti-depressant activity was observed except with cold aqueous infusion which prolonged the duration of mice immobility at higher dose level. None of the extracts possessed any anti-parkinsonian activity. No significant anti-convulsant activity was found with the extracts used in mice. No significant analgesic effect was observed. The ethanol and cold aqueous infusion extracts demonstrated significant anti-inflammatory effect through carragenin paw oedema test.

Ph. RU, Trivandrum

Fresh decoction made from male inflorescence was tested for its effect on isolated frog rectus abdominus muscle, pentobarbitone induced hypnosis, analgesic, anti-convulsant and anti-inflammatory activities. During studies on isolated frog rectus abdominus muscle preparation, the doses varying from 5 mg. to 40 mg./ml. bath concentration produced mild stimulation on frog rectus muscle. However, it failed to potentiate the action of acetylcholine on this tissue. In doses of 7 gm. and 15 gm./kg., the decoction potentiated the pentobarbitone induced hypnosis in mice but in doses of 10 gm./kg. it failed to exhibit any analgesic, anti-convulsant and anti-inflammatory effect in rats and mice.

14. Trivrit (*Operculina turpethum*)

Ph. RU, Bombay

Different extracts of the plant i.e. (i) MOT/CVR/C, (ii) MOT/CVR/M, (iii) JOT/CVR/P, (iv) JOT/CVR/C and (v) JOT/CVR/M were investigated for their effect on cat blood pressure and respiration, analgesic activity, anti-inflammatory effect, anti-asthmatic effect and acute toxicity effect.

None of the extracts in a dose upto 250 mg./kg. administered intra-duodenally showed any changes in blood pressure and respiration nor they altered the effects produced by standard drugs like adrenaline, acetylcholine, nor-adrenaline and histamine. None of the extracts demonstrated any analgesic activity by writhing method in male mice. None of the extracts could inhibit carragenin induced oedema in male rats indicating the absence of anti-inflammatory effect. None of the extracts showed any protection against histamine induced bronchospasm in male guinea pigs.

None of the extracts in doses administered upto 2 gm./kg. orally showed any toxic effects or mortality upto 7 days of their administration.

15. Jalkarna (*Lippia nodiflora*)

IIP, Cheruthuruthy

Different extracts from the whole plant were prepared and screened for various pharmacological activities such as acute toxicity studies. Both the chloroform and ethanol extracts caused some CNS depression. No significant hypnotic potentiation in mice was forthcoming with both the extracts. Both the extracts failed to antagonise reserpine induced ptosis, catatonia, sedation and hypothermia in mice. None of the extracts influenced the duration of mice immobility significantly. Both the extracts failed to antagonise d-amphetamine induced stereotypy in mice. Both the extracts failed to protect mice against electro-convulsions, neither did they modify the seizure pattern. Both the extracts did not afford protection to mice against pentylenetetrazol or strychnine induced convulsions. Chloroform extract did not modify oxotremorin induced tremors, head twitches, lachrymation, salivation and

diarrhoea in mice. No significant analgesic activity was observed with either of the extracts. No significant anti-inflammatory activity was observed with both the extracts. However, ethanol extract suppressed carragenin induced hind paw oedema in rats which were not dose dependant.

16. AYUSH AC-4

TRU, Bombay

The compound was investigated for its anti-inflammatory effect using carragenin and formalin induced hind paw oedema methods and the results were compared with standard drug e.g. oxyphenyl butazone. AYUSH AC-4 did not show any anti-inflammatory activity.

TRU, Jhansi

These studies are in continuation to the studies carried out during the preceding years. It exhibited dose dependant hypotensive effect for sustained period which could not be blocked by atropine in albino rats. The effect of AC-4 on CAR was also studied in albino rats. The results showed that graded doses of AC-4 did not possess any tranquilising or sedative activity. When administered in graded doses, it exhibited dose dependant uterine stimulant effect. The maximum stimulant activity was observed in 600 mg. dose. The drug when studied for its effect on blood sugar levels in albino rats did not exhibit any significant change even upto 30 days of its regular administration. It did not produce any changes in haematological parameters like total leucocyte count, differential leucocyte count, bleeding time and clotting time in both rats and rabbits in comparison to control animals. During sub-acute toxicity studies, it was observed that both albino rats and rabbits did not show any changes in behavioural pattern and there was no loss of weight indicating that it did not possess any sub-acute toxicity.

17. AYUSH-56

TRU, Bombay

The compound was investigated for its anti-inflammatory effect using carragenin and formalin induced hind paw oedema

methods and the results were compared with standard drug e.g. oxyphenylbutazone. Ayush-56 did not show any anti-inflammatory activity.

18. AYUSH-64

TRU, Jhansi

These studies were in continuation to the studies carried out during the preceding year. Ayush-64 exhibited significant dose dependent hypotension of longer duration in albino rats. The atropine was not able to block this hypotensive effect of Ayush-64 indicating that Ayush-64 induced hypotension is not mediated through muscarinic receptors. To find out its complete mechanism of action, it needs further evaluation. Further, Ayush-64 did not demonstrate any significant tranquilising or sedative activity as compared to chlorpromazine in albino rats. Its effect in graded doses from 100 mg. to 1 gm. was studied on the smooth muscle of rat uterus. The drug did not produce any effect with dosages used. It did not cause any significant effect in reducing the blood sugar levels in albino rats. Ayush-64 did not cause any changes in haematological parameters like total leucocyte count, differential leucocyte count, bleeding time and clotting time in rats and rabbits in comparison to control groups.

Ayush-64 when administered in the dose of 300 mg./kg. orally for 30 days both in albino rats and rabbits did not cause any loss of weight or behavioural changes indicating that it did not possess any sub-acute toxicity.

TRU, Bombay

The compound was evaluated for its anti-inflammatory activity on two different experimental models i.e. using carragenin and formalin. Ayush-64 showed anti-inflammatory activity by inhibiting the inflammation varying from 11.7% to 23.3%.

19 ROKI N1

TRU, Bombay

Acute toxicity studies were conducted in albino mice of either sex. Roki N1 was administered orally in suspension form with

methyl cellulose (0.5%) in distilled water. The animals were observed for 7 days for any symptoms of toxicity and mortality. The dosages administered varied from 1 gm./5 kg. orally. The animals appeared excited and delayed mortality was observed. However, the post mortem findings did not reveal anything significant to the naked eye. The LD-50 value determined according to Litch Field and Wilcoxon method is 3.5 gm./kg. with fiducial limits between 2.88 gm./kg. and 4.38 gm./kg. at 95% confidence level.

20. ROKI N2

TRU, Bombay

The acute toxicity was studied both in mice and albino rats of either sex. The compound was administered orally in suspension form with methyl cellulose (0.5%) in distilled water. The dosages varied from 1 to 5 gm./kg. orally and 2 to 6 gm./kg. orally in mice and rats respectively. In case of mice, some excitation was observed while the rats appeared normal. However, delayed mortality was observed in both the animals. Post mortem findings revealed nothing significant to the naked eye. The LD-50 in mice as per Litch Field and Wilcoxon method was found to be 3.2 gm./kg. with fiducial limits between 2.46 gm./kg. and 4.6 gm./kg. at 95% confidence level, while in case of rats, the LD-50 was 4.3 gm./kg. with fiducial limits between 3.58 gm./kg. and 5.16 gm./kg. at 95% confidence level.

21. *Strobilanthes heyneanus*

IIP, Cheruthuruthy

The aqueous and ethanol extracts of its leaves could not afford any protection to mice against cobra venom.

The anti-inflammatory effect of the leaf extract which has already been seen, was further taken-up to elucidate its mechanism of action. The ethanol extract markedly suppressed granulation tissue formation but the effect was not dose dependant. It decreased adrenaline at lower doses and liver weight but did not affect the weight of spleen. Further studies are continuing.

(i) Anti-hypertensive effect of Tulasi (*Ocimum sanctum*) in cases of stress induced hypertension—A preliminary study

50 known cases of mild to moderate essential hypertension with diastolic blood pressure up to 104 mm Hg. were selected in whom stress was the most important causative factor, The patients were given dried leaf powder filled in capsules, each containing 250 mg. of crude powder. Each patient was given two such capsules three times a day for six weeks, while the remaining 25 patients were given placebo. Blood pressure of all the individuals was taken periodically. The results indicate that *Ocimum sanctum* can be a very useful drug for the treatment of mild to moderate essential hypertension. The drug produces its full effect after a period of two weeks which is maintained thereafter as long as the drug is continued.

Large scale clinical trials are needed to confirm and establish its anti-hypertensive effects in human subjects.

**(ii) Anti-arthritic studies with Musta Ph. RU, Lucknow
(*Cyperus rotundus* and Ashwagandha
(*Withania somnifera*) in patients
of Rheumatoid arthritis**

The roots of both these plants have been described to be useful in inflammatory conditions in Ayurveda. Earlier anti-inflammatory, anti-pyretic and analgesic activity of *Cyperus rotundus* have already been observed in experimental animals. 200 cases of Rheumatoid arthritis were subjected to the double blind clinical trial comprising of four different groups, which were administered (i) *Cyperus rotundus*—crude powder, (ii) *Withania somnifera*—crude powder (iii) *Cyperus rotundus*+*Withania somnifera*—crude powders (iv) Placebo. Each group comprised of 50 patients. No untoward side effects were observed except mild diarrhoea in five cases. In drug treated groups as well as in placebo group, the combination of two groups was found to be superior in treating these cases of Rheumatoid arthritis as compared to individual drugs. Both were found to be virtually non-toxic and can be used safely for long periods.

These studies suggest for a large scale clinical trial and comparison of their efficacy with modern anti-arthritic agents.

(iii) Anti-stress studies

Ph. R.U, Lucknow

The anti-stress activity of plants was studied for assessment of ED-50 values and for finding out the anti-stress unit (ASU). The different plant extracts were given in at least three graded doses varying from 10 mgm./kg. to 60 mgm./kg. orally. The various parameters adopted were given swimming performance test, assessment of adrenal function after five hours constant swimming. The ascorbic acid content of the cortisol content of the adrenal glands were estimated, to assess the efficacy of drug. The effect of different plant extracts was also studied through restraint stress induced gastric ulcers in rats. The plants which were evaluated through the above given parameters were :—

1. *Ocimum sanctum* (Tulasi)
2. *Withania somnifera* (Ashwagandha)
3. *Altingia excelsa* (Silaras)
4. *Diospyros peregrina* (Thinduka)
5. *Picrorhiza kurroa* (Katuki)
6. *Nymphaea stellata* (Nee lakamal)
7. *Cannabis indica* (Bhanga)
8. *Eleutherococcus senticosus*
9. *Panax ginseng*

Ocimum sanctum was found to be most potent antistress agent. Next was *Withania somnifera*. The foreign anti-stress plants i.e. *Eleutherococcus senticosus* and *Panax ginseng*, were less potent than *Ocimum sanctum*. All other plants were found to be having less anti-stress potentiality as compared to *E. senticosus* which was taken as a reference standard plant drug (supplied by Russia).

PHARMACEUTICAL RESEARCH STUDIES

PHARMACEUTICAL RESEARCH STUDIES

The Council has taken up standardisation studies on single drugs, process of manufacture of formulations and on the finished formulations, besides some other ancillary studies like shelf life, estimation and role of preservatives etc. under this programme.

Standardisation studies on single drugs, method of manufacture and formulations are being carried out at R.R.I., Trivandrum, C.S.M.D.R.I.A., Madras, Amalgamated Unit, Tarikhet, Standardisation Research Project; Jamnagar, standardisation studies on single drugs and formulations are carried out at R.R.C., Bangalore; while rapid analytical values for formulations are laid down at C.S.M.D.R.I.A., Madras, Standardisation Research Project, Varanasi and Jamnagar.

The details of the items/studies carried out by the above Research Projects during the reporting period are as follows :—

Analytical Standards

1. <i>Swarna Bhasma</i>	CSMDRIAM
2. <i>Sarvato Bhadra Vati</i> (without gold)	-do-
3. <i>Hiranya garbha Potali Rasa</i> (without gold)	-do-
4. <i>Hemagarbha Potali Rasa</i>	-do-
5. <i>Gandamala Khandana Rasa</i>	-do-
6. <i>Pushpa Dhanva Rasa</i>	-do-
7. <i>Maha Shankha Vati</i>	-do-
8. <i>Naracha Rasa</i>	-do-
9. <i>Arshakuthara Rasa</i>	-do-
10. <i>Simhanada Guggulu</i>	PSRUJ
11. <i>Nagabhasma</i>	-do-
12. <i>Ashwagandhadi Churna</i>	-do-
13. <i>Ahiphenasava</i> (without Ahiphenasava)	-do-

14.	<i>Ashokarista</i>	PSRUJ
15.	<i>Chandamaruta Rasa</i>	-do-
16.	<i>Dhatrt Loha</i>	-do-
17.	<i>Guducht Satva</i>	-do-
18.	<i>Guduekt Taila</i>	-do-
19.	<i>Ichabhedi Rasa</i>	-do-
20.	<i>Laksha Guggulu</i>	-do-
21.	<i>Marichadi Gutika</i>	-do-
22.	<i>Pippalyadi Loha</i>	-do-
23.	<i>Swasa Kuthara Rasa</i>	-do-
24.	<i>Trikatu Churna</i>	-do-
25.	<i>Vasavaleha</i>	-do-

Single Drugs

1.	<i>Nirgundibeeja (Renuka) (Vitex negundo)</i>	PSRUJ
2.	<i>Brihati (Solanum indicum)</i>	PSRUJ, RRCB
3.	<i>Kulatha (Dolichos biflorus)</i>	PSRUJ
4.	<i>Masaparni (Tecomous labialis)</i>	-do-
5.	<i>Karchura (Curcuma zeodaria)</i>	-do-
6.	<i>Chakramarada (Cassia tora)</i>	-do-
7.	<i>Jayapala (Croton tiglium)</i>	-do-
8.	<i>Babbula (Acacia arbica)</i>	-do-
9.	<i>Jyotishmati (Celastrus paniculatus)</i>	-do-
10.	<i>Mudgaparni (Phaseolus trilobus)</i>	-do-
11.	<i>Sahachara (Barleria prionites)</i>	-do-
12.	<i>Elavaluka (Prunus avium)</i>	-do-
13.	<i>Aragvadha (Cassia fistula)</i>	-do-
14.	<i>Mocharasa (Salmaia malabarica)</i>	-do-
15.	<i>Saurastri (Alum)</i>	-do-
16.	<i>Nimba (Azadirachta indica)</i>	-do-
17.	<i>Prasarini (Paederia foetida)</i>	-do-
18.	<i>Sarsapa (Brassica campestris)</i>	-do-
19.	<i>Indrayava (Holarrhena atidysenterica)</i>	-do-
20.	<i>Parijata (Nyctanthus arborstritis)</i>	CSMDRIAM
21.	— (<i>Altingia racemosa</i>)	-do-
22.	<i>Vandhyavari (Vicoa indica)</i>	-do-
23.	<i>Agnimantha (Premna integrifolia)</i>	-do-

24.	<i>Bhojpatra (Betula utilis)</i>	CSMDRIAM
25.	<i>Poochandira Pattai (Tamil)</i>	-do-
26.	<i>Agnimantha (Bheda) (Clerodendrum verifolium)</i>	-do-
27.	<i>Dichora febrifuga</i>	-do-
28.	<i>Agaru (Aqualarta agallocha)</i>	RRCB
29.	<i>Vishala (Trichosanthes palmata)</i>	-do-
30.	<i>Vridhdharu (Argyria speciosa)</i>	RRCB, RRIT, AUT
31.	<i>Nagakeshara (Mesua ferrea)</i>	RRCB
32.	<i>Shatavari (Asparagus racemosus)</i>	-do-
33.	<i>Vishnukranti (Evolvulus alsinoides)</i>	-do-
34.	<i>Ela (Elettaria cardamomum)</i>	-do-
35.	<i>Pushkaramula (Inula racemosa)</i>	-do-
36.	<i>Jatiphala (Myristica fragrans)</i>	-do-
37.	<i>Karkatashringi (Pistacia integerrima)</i>	RRIT
38.	— (<i>Oldenlandia corymbosa</i>)	-do-
39.	<i>Gunja (Abrus precatorius)</i>	-do-
40.	— (<i>Acalypha indica</i>)	-do-
41.	<i>Kiratatikta (Andrographis paniculata)</i>	-do-
42.	<i>Brahmi (Bacopa monnieri)</i>	-do-
43.	— (<i>Riophytum sensitivum</i>)	-do-
44.	<i>Mandooka parni (Centella asiatica)</i>	RRIT, AUT
45.	— (<i>Cosearia curzniflora</i>)	RRIT
46.	— (<i>Chonemorphia macrophylla</i>)	-do-
47.	<i>Twak beeda (Cinnamomum wightiana)</i>	-do-
48.	<i>Shankha pushpi</i>	-do-
49.	<i>Narikela (Cocos nucifera)</i>	-do-
50.	<i>Guggulu (Commiphora mukul)</i>	-do-
51.	— (<i>Croton oblongifolius</i>)	-do-
52.	— (<i>Cryptocoryne spiralis</i>)	-do-
53.	<i>Durva (Cynodon dactylon)</i>	RRIT, AUT
54.	— (<i>Dysoxylum malabaricum</i>)	RRIT
55.	<i>Vata (Ficus bengalensis)</i>	-do-
56.	<i>Udumbara (Ficus glomerata)</i>	-do-
57.	<i>Lakhsha (Cocos lacca)</i>	-do-
58.	<i>Jivanti (Leptadenia reticulata)</i>	-do-
59.	— (<i>Mahonta teschenaulti</i>)	-do-
60.	<i>Amra (Mangifera indica)</i>	-do-
61.	— (<i>Mollugo cervlana</i>)	-do-

62.	<i>Atmagupta (Mucuna pruriens)</i>	RRIT
63.	<i>Kadali (Musa paradisiaca)</i>	-do-
64.	<i>Upakunchika (Nigella sativa)</i>	-do-
65.	— (<i>Oldenlandia corymbosa</i>)	-do-
66.	<i>Changeri (Oxalis corniculata)</i>	-do-
67.	<i>Pippali Bheda (Piper attenuatum)</i>	-do-
68.	<i>Vakuchi (Psoralea corlifolia)</i>	-do-
69.	<i>Sarpagandha (Rauwolfia serpentina)</i>	-do-
70.	<i>Chandana (Santalum album)</i>	-do-
71.	<i>Ashoka (Saraca indica)</i>	-do-
72.	<i>Sala (Shorea robusta)</i>	-do-
73.	<i>Jamboo (Syzygium cumini)</i>	-do-
74.	<i>Methika (Trigonella foenum graecum)</i>	-do-
75.	— (<i>Vernonia cinera</i>)	-do-
76.	<i>Vijaya (Cannabis sativa)</i>	AUT
77.	<i>Shwetasraja</i>	-do-
78.	<i>Yavani (Trachyspermum ammi)</i>	-do-
79.	<i>Chincha (Tamarindus indica)</i>	-do-
80.	<i>Agasthya (Sesbania grandiflora)</i>	-do-
81.	<i>Kanchanara (Bauhinea variegata)</i>	-do-
82.	<i>Vatsanabha (Aconitum ferox)</i>	-do-
83.	<i>Nirgundi (Vitex negundo)</i>	-do-
84.	<i>Nimba (Azadirachta indica)</i>	-do-
85.	<i>Gambhari (Gmelina arborea)</i>	-do-
86.	<i>Shweta jirka</i>	-do-
87.	<i>Devadaru (Cedrus deodara)</i>	-do-
88.	<i>Shigru (Moringa pterigosperma)</i>	-do-

Method of Manufacture

1.	<i>Asavarista</i>	CSMDRIAM
2.	<i>Avaleha</i>	PSRUJ
3.	<i>Bhasma</i>	-do-
4.	<i>Shodhana</i>	RRIT
5.	<i>Rasa</i>	AUT
6.	<i>Loha</i>	-do-
7.	<i>Parpati</i>	-do-
8.	<i>Shodhana of Parad, Vatsanabha</i>	-do-

Finished Products

1. <i>Aravindasava</i>	CSMDRIAM
2. <i>Dashamularishta</i>	-do-
3. <i>Chandanasava</i>	-do-
4. <i>Pipplyasava</i>	-do-
5. <i>Mridwikarista</i>	-do-
6. <i>Ashokarista</i>	PSRUV
7. <i>Sringa bhasma</i>	PSRUJ
8. <i>Trivanga bhasma</i>	-do-
9. <i>Naga bhasma</i>	-do-
10. <i>Vanga bhasma</i>	-do-
11. <i>Makaradhvaja</i>	-do-
12. <i>Bahushala guda</i>	-do-
13. <i>Eranda paka</i>	-do-
14. <i>Trivikrama rasa</i>	RRCB
15. <i>Unmada gajakesari rasa</i>	-do-
16. <i>Vatagajankusha rasa</i>	-do-
17. <i>Sringarabhra rasa</i>	-do-
18. <i>Poorna chandra rasa</i>	-do-
19. <i>Chakramarda keram</i>	RRIT
20. <i>Aragwadha keram</i>	-do-
21. <i>Lajjalu keram</i>	-do-
22. <i>Mushikadi tailam</i>	-do-
23. <i>Arka vati</i>	-do-
24. <i>Kutaja ghana vati</i>	-do-
25. <i>Agnimukha churna</i>	-do-
26. <i>Pinda tailam-A</i>	-do-
27. <i>Ashvagandha churna</i>	-do-
28. <i>Drakshadi vati</i>	-do-
29. <i>Lavangadi churna</i>	-do-
30. <i>Gangadhara churna</i>	-do-
31. <i>Ashtanga lavana</i>	-do-
32. <i>Da dimastaka churna</i>	-do-
33. <i>Abhayavati</i>	-do-
34. <i>Mandoora bhasma</i>	AUT
35. <i>Shringa bhasma</i>	-do-

36. <i>Karpoora</i>	AUT
37. <i>Ganda mala khandan rasa</i>	-do-
38. <i>Yakrit plihari loha</i>	-do-
39. <i>Manmathabhra rasa</i>	-do-
40. <i>Jvarankusha rasa</i>	-do-
41. <i>Tamraparpati</i>	-do-

Miscellaneous Studies

Efforts have also been initiated for developing tests/methods for differentiating the usage of genuine and the substitute/adulterant drugs in certain formulations. The following drugs have been selected for this purpose :—

1. *Lavanga* (*Syzygium aromaticum* and *Cinamomum wightiana*)
2. *Ativisha* (*Aconitum heterophyllum* and *Cryptocarya spicata*)
3. *Jatiphala* (*Myristica fragrans* and *Myristica malabarica*)
4. *Yastimadhu* (*Glycyrrhiza glabra* and *Abrus precatorius*)
5. *Sarpagandha* (*Rauwolfia serpentina* and *Rauwolfia densiflora*)

In addition to the Standardisation Research Studies, some ancillary studies have also been carried out on shelf life, identification of major active components in formulations, studies related to evolve a non-steroidal acceptable cheap indigenous contraceptive, anti-cancerous, anti-pyretic compounds from plant materials.

Musk Deer Breeding Programme

The Council has a Musk Deer breeding farm at Maharuri (Dharmagarh-1200 (m.a.s.l.) for obtaining the musk without sacrificing the animal.

The diet habits and acclimatisation levels have been established and the Council has been able to breed the Deer in captivity and upto the end of March '86, 16 Deers (8 males and 8 females) of different ages ranging from 276 days to 10-3/4 years are maintained in the farm.

The Council hopes to achieve the ultimate aim of obtaining musk without sacrificing the animal in the years to come.

LITERARY RESEARCH

LITERARY RESEARCH

The Literary Research Programme under the Council is being carried out through Indian Institute of History of Medicine, Hyderabad, Documentation and Publication Division, New Delhi and Literary Research Unit, Thanjavur. The main objective of this programme is to undertake medico-historical studies and collection of subject wise references from ancient classical literature, published literature in Ayurveda and Modern Sciences. The revival and publication of the ancient literature, publication of "Journal of Research in Ayurveda and Siddha," "Bulletin of Medico-Ethno-Botanical Research," "Bulletin of Indian Institute of History of Medicine" and News Letter, research work in the form of articles/papers or special monographs are also included in this programme. A brief resume of the work carried out under this programme is reported hereunder :

Indian Institute of History of Medicine, Hyderabad

The Institute has completed the study of *Padmapurana* for collection of Medico-historical information and the material collected will be arranged and presented in the form of an article. For collection of information and study of manuscripts, Bharat Itihas Samshodhaka Mandal (BISM) and Bhandarkar Oriental Research Institute (BORI) at Pune were visited. A list of 173 titles covering 432 manuscripts of Ayurveda from a catalogue of 18,000 manuscripts on various subjects available at BISM was prepared and 59 manuscripts out of the selected titles were inspected. Another 70 titles of manuscripts were also selected from BORI after referring 14 lists of uncatalogued manuscripts containing 3,733 titles.

A note on the medical manuscript *Mualijat-a-Nebavi* (Persian) by Gulam Imam has been completed. Biographies of 36 physicians of Hyderabad during Nizam dynasty have been published. Translation of last two chapters of *Islami Tibb* compiled by

Rehbar Farooqui (Premughal and Mughal period of north India) has been completed. The study of Al Hawi-Vol. XXII has also been completed. Translation of 25 pages (from 88 to 113) of Islami Tibb Shahana Serperas tiyon Main Moinuddin Rehbar Farooqui (Urdu) has been completed and the material will be arranged in two articles.

Regarding compilation of references on biographies of physicians mentioned in Vol. XXI and XXII of Al-Hawi by Abu Beker Mohammed Bin Zakeria Razi has been completed. For biographies of Physicians of Hyderabad before Nizam II dynasty, 11 books have been studied and a list of 15 physicians has been prepared. The Institute has also provided referral services on various subjects to 123 scholars. The Institute has released Vol. XIII (1983) of the Bulletin of Indian Institute of History of Medicin and Vol. XIV (1984) of this Bulletin has also been sent to Press. The Institute is also maintaining a Museum and a Library. Publications worth Rs. 1,608/- were also sold during the reporting period.

Documentation and Publication Division, New Delhi

The Documentation and Publication Division has continued the work of collection of textual reference on 19 single drugs of 1st part of Ayurvedic Formulary from *Brihatrayi* including *Nighantus* of Ayurvedic classics. Further references on two disease conditions viz. *Amavata* and *Pakshaghata* have been compiled from *Granthas* as well as from other Ayurvedic books. 90 index cards with annotations related to the bibliography of research work carried out by CCRAS Scientists during 1971-85 were prepared. Ledgering and indexing work of 156 research papers from periodicals, confernee precedings and research reports etc. was also carried out.

The Library of this Division has acquired two micro films on the manuscripts of "*Shabda chandrika*" from India Office Library and records besides acquisition of 157 books to meet the needs of its readers. Photographic Section of this division has covered the conference on "Involvement of Private Practitioners of ISM & H" held at National Institute of Health & Family Welfare, New Delhi. The Division has also been providing reference services on disease

conditions and drugs to the Institutes/Centres/Units functioning under the Council and to the Programme Officers of Headquarters Office in addition to the reference services provided to other Institutions and Scholars.

The Publication Wing of this division has received 35 articles for publication. September-December, 1982 and June 1985 issue of the quarterly "Journal of Research in Ayurveda and Siddha" and Vol. VI (No. 1, 1985) issue of the quarterly "Bulletin of Medico-Ethno-Botanical Research" have been released. Compilation and editing of other pending issues of Journal, Bulletin and News Letter is in progress. Publication of *Sahasrayoga* in Sanskrit and Hindi and critical edition of *Astanga Sangraha* is in the process of printing. Publication worth Rs. 21,563.20 were sold during the reporting period.

Literary Research Unit, Thanjavur

This Unit has prepared press copy (Sanskrit) of 123 pages (from 619 to 741) of *Chikitsamrita sagar*. Editing of the Hindi translation (alongwith explanatory footnotes) of 380 pages of this manuscript is in progress and efforts are being made to complete the Hindi translation of this book.

The Unit also continued the work on *Sarbhendra Vaidya Kosh* compiled by famous Raja Serfoji II of Thanjavur and has added local names, botanical names, synonyms and therapeutic uses of the drugs referred in this *Kosh* from *Nighantus* and Modern *Materia medica*. The comparison of *Sarbhendra Vaidya Ratnavli* (Sanskrit) with original manuscript available in the Library has been completed. Copying work of 147 pages (1,000 Shlokas) of *Pathyapdthia Vibodha* manuscript obtained from TMSSM Library has also been carried out during the reporting period.

The Unit is also maintaining a Library having 1,100 books and 780 palm leaves.

FAMILY WELFARE RESEARCH PROGRAMME

FAMILY WELFARE RESEARCH PROGRAMME

The Council has been carrying out two types of studies under this programme namely Clinical studies and Pharmacological studies. Clinical studies are carried out for evaluation of plants/plant products as oral contraceptive agents to establish their known anti-fertility activities whereas 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 products as oral contraceptive agents were carried out at the Institutes/Units functioning at Ahmedabad, Bombay, Bhubaneshwar, Calcutta, Delhi, Jaipur, Lucknow, Patiala, Madras, Trivandrum and Varanasi. During the reporting period the following drugs were studied :—

- | | |
|--------------------------------------|--------------|
| 1. AYUSH AC-IV | A coded drug |
| 2. K-capsule | -do- |
| 3. J-capsule | -do- |
| 4. <i>Pippalyadi yoga</i> | |
| 5. <i>Vandhyavari (Vicoa indica)</i> | |
| 6. Roki | A claim |

AYUSH AC-IV

The trial of this drug has been continued at Bombay, Calcutta, Delhi, Jaipur, Lucknow, Patiala, Madras and Trivandrum while Central Research Institute for Ayurveda, Bhubaneshwar has also

initiated trial on this drug during the reporting period. The work carried out on this drug by various Institutes/Units is as follows :—

CRUFB

The study was continued further and 80 new cases were included into the study besides the follow-up study of old cases carried forward from the previous year. Only one woman conceived due to drug failure. 46 women were continuing the study in different cycles at the end of the reporting period. Side effects reported, were not significant.

CRIB

The study was taken up during the reporting period and 14 cases were enrolled. Five cases reported pregnancy due to drug failure and another five cases discontinued the study due to the side effects. The remaining four cases were continuing the study at the end of the reporting period.

CRID

In all 14 cases were studied during the reporting period, out of which five cases conceived due to drug omission and seven cases dropped out due to various other reasons. At the end of the reporting period, two cases were continuing the drug.

RRIC

In all 64 cases (19 new and 45 old) were given the drug, out of which one woman conceived due to drug failure and 15 women dropped out due to various other reasons. At the end of the reporting period, 48 cases were continuing the drug in different cycles. A very few cases have reported side effects of mild nature.

RRIL

During the reporting period 27 new cases were included into the study besides the study of 99 old cases carried forward from

the previous year. Out of these total 126 cases pregnancy was reported in 20 cases due to durg failure and in 22 cases due to drug omission. At the end of the reporting period, 48 cases were continuing the durg in different cycles and remaining 36 cases discontinued the study due to reasons other than pregnancy and side effects.

RRIJ

Eight women, including two women carried forward from the previous year were studied during the reporting period.

ALURIM

During the reporting period, 171 cases were given the drug. Out of these 171 cases, four cases conceived due to drug failure, five cases conceived due to drug omission and ten cases discontinued the study due to side effects of the drug where as 46 cases also discontinued the study due to the reasons other than pregnancy and side effects. Remaining 106 cases, were continuing the study in different cycles.

IJKP

The study was continued further and 35 (18 new and 17 old) cases were given the drug in different cycles. Three cases conceived due to drug failure and seven cases conceived due to drug omission whereas 18 other cases also discontinued the study due to various reasons, other than pregnancy and side effects. The remaining seven cases were continuing the study in different cycles.

CRUFT

During the reporting period, the drug was given to 94 new cases and 52 old cases carried forward from last year, out of which two cases conceived due to drug failure and eight cases conceived due to drug omission while six other cases also discontinued the study due to various other reasons. At the end of the reporting period, 130 cases were continuing the study in different cycles. A few cases have also reported mild side effects of the drug.

K-Capsule**CRUFV**

The study was carried out further and 19 new cases were included into the study in addition to the 201 old cases carried forward from the previous year. Out of these 220, cases, two women, each conceived due to drug omission and drug failure whereas 91 women discontinued the study due to various reasons, other than pregnancy and side effects, Remaining 125 women were continuing the study at the end of the reporting period in different cycles.

J-Capsule**CRUFV**

This study was restarted from 1st April 1985 and 26 cases were included into the study. All these cases were continuing the study at the end of the reporting period in different cycles. No pregnancy or side effects were observed in these cases studied.

Pippalyadi yoga

*

Study on this drug was carried out at Ahmedabad and Calcutta units.

CRUFA

During the reporting period, 62 new cases were included besides 49 old cases carried forward from the previous year. Out of total 111 cases, one case conceived due to drug omission and another woman discontinued the study due to side effects of the drug. 32 cases also discontinued the drug due to various other reasons and remaining 77 cases were continuing the drug at the end of the reporting period, in different cycles.

RRIC

During the reporting period, 12 new cases and 9 old cases carried forward from the previous year were studied, Out of total 21 cases, one case conceived due to drug failure and nine cases

dropped out due to various other reasons. Remaining eleven cases were continuing the study in different cycles, at the end of the reporting period.

Roki

CRID

The clinical trial of Roki—an individual claim approved by the Scientific Advisory Committee (Ayurveda) was taken up during the reporting period and 28 cases were included into the study. Out of these 28 cases, 16 cases, conceived due to drug failure and eight other cases dropped out due to various other reasons. Remaining four cases were continuing under the follow-up study at the end of the reporting period,

Vandhyavari (*Vicoa indica*)

CRID

The clinical trial of *Vandhyavari* (*Vicoa indica*) was taken up during the reporting period. 38 cases were enrolled for this trial, out of which four women conceived due to drug failure and 12 due to drug omission, Two cases discontinued due to side effects and one case discontinued due to change of residence. Remaining 19 cases were continuing under the follow-up study at the end of the reporting period.

Pharmacological Studies

Pharmacological studies were carried out by the units functioning at Bhubaneshwar, Jamnagar, Trivandrum, and Varanasi. The work carried out by these units is reported hereunder :—

(a) Pharmacological Research Unit (Under FWRP), Bhubaneshwar

During the period under report, the unit has screened crude power of the three drugs i.e. *Palasha* (*Butea frondosa* Linn.); *Arishtak* (*Sapindus trifoliatus*) and *Apamarga* (*Achyranthes aspera*) in experimental animal models rat and rabbits, to confirm their anti-ovulatory, anti-implantation activities as well as effects on oestrous cycle of albino rats. The drugs have shown significant activity at higher dose level i.e. 200 mg./kg. body weight.

(b) **Pharmacological Research Unit (under FWRP), Jamnagar**

During the period under report, the unit has screened 'Palasha' (*Butea frondosa* Linn.) and 'Arishtak' (*Sapindus trifoliatus*) to assess their post-implantation effect. The 'Palasha' was found to possess 71.4%, post-implantation effect while *Arishtak* did not show any such activity.

(c) **Pharmacological Research Unit (under FWRP), Trivandrum**

During the period under report, the unit screened the acute toxicity effect of *Apamarga* (*Achyranthes aspera*) and *Arishtak* (*Sapindus trifoliatus*). The drugs were found toxic in the doses of 250 mg. and 220 mg. per kg. body weight respectively. Effect of *Apamarga* (*Achyranthes aspera*) on spermatogenesis was found to be insignificant. *Sapindus trifoliatus* showed significant anti-implantation effect-40% and 60% with 200 and 400 mg./kg. body weight respectively.

(d) **Pharmacological Research Unit (under FWRP), Varanasi**

This unit has prepared the drug 'J' capsule and supplied to the clinical Research Unit (under FWRP) functioning in the same campus. The Unit has also supplied 2 kg. of *Japa Kusum* (*Hibiscus rosa sinensis*).

Statement showing the details of the cases studied for Clinical Evaluation of Oral Contraceptive Agents

Name of the drug	Centre	No. of cases studied		No. of cases dropped out due to			No. of cases continuing the study	
		New cases enrolled during the reporting period	Old cases carried forward from previous year	Pregnancy		Side effects		Other reasons
				Drug failure	Drug omission			
1	2	3	4	5	6	7	8	9
AYUSH AC-IV	Bhubaneshwar	14	—	5	—	5	—	4
	Delhi	14	—	—	5	—	7	2
	Lucknow	27	99	20	22	—	36	48
	Calcutta	19	45	1	—	—	15	48
	Madras	91	80	4	5	10	46	106
	Patiala	18	17	3	7	—	18	7
	Trivandrum	94	52	2	8	—	6	130
	Jaipur	6	2	not	—	—	—	—
Bombay	80	46	1	—	—	79	46	

(Contd.)

1961

1	2	3	4	5	6	7	8	9
K-Capsule	Varanasi	19	201	2	2	—	91	125
J-Capsule	Varanasi	26	—	—	—	—	—	26
Pippalyadi yoga	Ahmedabad	62	49	—	1	1	32	77
	Calcutta	12	9	1	—	—	9	11
Roki	Delhi	28	—	16	—	—	8	4
Vandhyavari	Delhi	38	—	4	12	2	1	19

PUBLICATIONS/PARTICIPATIONS

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.	Bajpeyi, V.S., Sharma, B.N., Dutta, S K. and Ojha, J K.	Studies on Asavas and Arishtas with special reference to Vasakarista.	Jour. of Res. and Edu. in Indian Medicine. 4(1-2) : 51-54	June, 85
2.	Mukherjee, G.D.	Epilepsy-A social problem Pt. II study of Ayush-56 on Epilepsy.	Nagarjun XXVIII (12) 4-7	Aug., 85
3.	Singh, A.K. and Singh, V.K.	Ras Shastrantargat shodhan kriya.	Ayurveda Vikas 24(9) : 31-34	Sep., 85
4.	-do-	Ayurveda mein Jwarotapti samprapati chikitsa	Ayurveda Vikas 24 (12) : 28-32	Dec., 85
5.	Singh, V.K. and Kumar, S.	Pama aur Vicharchika. (Bhag one)	Sachitra Ayurveda	April, 85
				(Contd.)

1	2	3	4	5
6.	Singh, V.K. and Singh, A.K.	Tamak Swasa parichyatmak adhyayan.	Sachitra Ayurveda 38 (6) : 459	Dec., 85
B. Health Care Research				
7.	Gopakumar, K. and Vijayalakshmi, B.	Role of Ayurveda in W.H.O.'s programme 'Health for all by 2,000 A.D.'	Vagbhata 3 : (4-5) : 37-41	1985
C. Medico-Botanical Survey and Cultivation				
8.	Nair, K.V., Gopakumar, K., Yoganarsimhan, S.N., Shantha, T.R. and Keshavamurthy, K.R.	Medico botany of Andaman and Nicobar Island IV (Ayurvedic drugs).	Ancient Science of Life 5 (3) : 176-191	1985
9.	Sharma, P.C., Murty, K.S., Bhat, A.V. and Narayanappa, D.	Medicinal lores of Orissa-I in skin diseases.	BMEBR 6 (1) : 93-101	1985
D. Pharmacognostical and Chemical Research				
10.	Chakraborty, R., Das, B. and Banerjee, J.	Bis - coumarins from <i>Edgeworthia gardneri</i> .	Phytochemistry 25 : 557	1986

(Contd.)

1	2	3	4	5
11.	Dey, D. and Das, M.N.	Drug Characterisation of <i>Vernonia cinerea</i> Less. by Pharmacognostic analysis.	Jour. of Res. and Edu. in Indian Medicine. 4 (3-4) : 33-44	Dec., 85
12.	Kundu, A.B., Ray, S. and Chatterjee, A.	Two new Maliacins of <i>Aphanmixis polystachya</i> .	-do- 4 (3-4) : 1-4	-do-
13.	Pataskar, R.D., Yalve, M.B. and Ali Usman	An interesting drug from W. Maharashtra Forest Dwellers.	Nagarjun XXVIII ; (12) : 8-9	Aug., 85
14.	Saxena, R.B., Mehta, H.C. and Daswani, M.T.	Physico-chemical and fluorescence study of Gandhaka rasayana.	J. Sci. Res. Plant and Med., Hardwar 5 (3-4) : 19-25	1985
E. Pharmacology				
15.	Balakrishnana, V., Nar- endranathan, M., Raji, E.K., Subair, A.S., Pillai, N.R. and Santhakumari, G.	Nimbidin in duodenal ulcer.	Tropical Gastroentology 5 (1) ; 23-25	1985
16.	Dadhich, A.P., Khanna, N.K., Vyas, D.S., Barar, S.K., Shukla, B. and Jagdev	Prevalence and nature of drug abuse amongst medical students and army personal, a comparative study.	Current Medical practise	Sept., 85
<i>(Cont d.)</i>				

1	2	3	4	5
17.	Dennis, T.J.	A preliminary pharmacological screening of <i>Abutilon indicum</i> -II Analgesic activity.	Filoterapia LVI (3) : 169	1985
18.	Dixit, K.S., Srivastava, M., Srivastava, A.K., Singh, S.P. and Singh, N.	Effect of <i>Ocimum sanctum</i> on stress induced alterations upon some brain neurotransmitters and enzyme activity.	Ind. J. Pharm.	1986
19.	Khanna, N.K., Tahasildar, J.	Anti-inflammatory activity of cretine and indomethacinin drug mixture in rats.	Ind. J. Expt. and Biology	July, 85
20.	Mallick, R.N., Das, P.C. and Chatterjee, S. M.	Anti-feeding properties of <i>Swertia chirata</i> against jute Semilooper (<i>Anonts sabulifera</i> Guen).	Current Science 54 : (21) : 1110-11	Nov., 85
21.	Pillai, N.R., Vijayaamma, N.	Some pharmacological study on <i>Cardiospermum halicacabum</i> Linn.	Ancient Science of Life 5, 22-36	1985
22.	Pillai, N.R., Santhakumari, G.	Effect of Nimbidin on Gastric acid secretion.	Ancient Science of Life 5, 91-97	1985

(Contd.)

1	2	3	4	5
23.	Sarkar, S., Das, P.C. and Poddar, G.	Hypoglycaemic activity of <i>Bougainvillea spectabilis</i> in streptozotocin (STZ) induced diabetic rats.	J. Industrial Chem. (India)	1986
24.	Shanthakumari, G., Pillai, N.R., Sheshadri, C.	Anti-diabetic activity of 'Dia-Dev' an Ayurvedic preparation.	Nagarjuna 27, 161	1985
25.	Shukla, B., Khanna, N.K., Dadhich, A.P.	Second generation anti-depressants	Indian Practitioner	Dec., 86
26.	Singh, N., Singh, S.P., Kohli, R.P., Bhargava, K.P.	Comparative evaluation of some anti-stress drugs of plant origin.	Ind. Jour. of Pharmacology	1985
27.	Singh, S.P., Singh, N. and Kohli, R.P.	A clinical trial of <i>Cyperous rotundus</i> in the cases of arthritis.	-do-	-do-
28.	Singh, N.	Prevention of Urethane induced lung, adenomas by <i>Withania somnifera</i> (L) Dunal in albino mice.	Ind. J. Crude Drug Res. (Alabama) U.S.A.	1986

1	2	3	4	5	6
F. Drug Standardisation					
29.	Saxena, R.B. and Mehta, H.C.	Thermodynamic study of Dasmula taila		Anandavijatri 2 (2) : 71-81	1985
30.	-do-	Thermodynamic study of tailas used in Panchakarma therapy		J. of Res. and Edu. Indian Med. Varanasi 4 : (1-2) 31-35	1985
G. Family Welfare					
31.	Geetha, A., Anandavalli, Amma, M., Nair, C.P.R. and M. Subhadra	A promising Ayurvedic oral contraceptive		Vagbhata 3 (4-5) : 19-23	1985
32.	Padhi M.M. and Mishra B.D.	Correlation of Ayurvedic and Modern concept on Male sexual function and dysfunction		Sachitra Ayurveda 38 (8) : 607-618	1986
H. Miscellaneous					
33.	Balakrishna, K., Natrajan, R.K. and Purushothaman, K.K.	Devadaru—The magnificent Himalayan tree		Nagarjun XXVIII (12) : 10-12	Aug., 85

II. Participations

S. No.	Name of the author (s)	Title of the paper/Article	Name of the Conference/ Seminar/Workshops	Date of partici- pations
(1)	(2)	(3)	(4)	(5)

A. Clinical and Basic Research

1. Dave, K.J. and Dave. S.K. **Health and Longivity of Life through Sodhana.** Int. Conf. on Panchakarma and Sodhan therapy, Ahmedabad. 15th to 17th March 1986
2. Dixit, K.S., Singh, S.P., Singh, K.N., Singh, N. and Kohli R.P. ***Inula racemosa (Pushkarmula), Terminalia bellerica (vibhitak) and Ocimum Sanctum (Tulsi)*—A Preliminary clinical trial in asthma patients** Int. Seminar on Clinical Pharma. in Dev. countries Lucknow. 13th-14th Jan., 86
3. Mukherjee, C.D. **The skin disease-vitiligo a social problem** Workshop programmes organised by CCRUM Hyderabad. 18th Jan. to 20th Jan., 86

(Contd.)

1	2	3	4	5
4.	Nair, P.R., Vijayan, N.P., Madhvikutty, P. and Bhaskaran, V.A.	Effect of Bhadradarvadi taila and Sahacaradi taila in Poliomyelitis (Saisaveeyavata).	37th Indian Pharma- ceutical Cong., New Delhi.	26-28th Dec., 85
5.	Nair P.R., Vijayan, N.P., Madhvikutty, P., Indirakumari. S. and Saraswathy, V.N.	Effect of Bhadradarvadi taila and Sahacaradi taila in Khanja and Pangu.	Int. Conf. on Traditional Medicine, Madras.	23-25th Jan., 86
6.	Ramu. M.G., Venkataraman, B.S., and Janakiramaiah, N.	Manovikara (as described in Ayurveda) with special reference to Udvega and Vishada.	30th Annual Conference Indian Psychiatric Society, Jaipur.	Jan., 86
7.	Rawal, J.H.	Effect of Shirovirechana on Shiroroga.	Seminar on Panchakrma, Ahmedabad.	March, 86
8.	Singh, N., Singh, S.P. and Kohli, R.P.	Indigenous drugs in treatment of arthritis.	Int. Seminar on Clinical Pharma. in Dev. countries Lucknow.	13-14th Jan., 86
9.	Singh, S.P., Singh, N. and Kohli, R.P.	A clinical trial of <i>Melia azadirachta</i> (<i>neem</i>) in common skin disorders	Int. Seminar on Clinical Pharma. in Dev. countries Lucknow.	13th to 14th Jan., 86

(Contd.)

1	2	3	4	5
10.	Tewari, D.N., Pandey, G.	Recent advancement in Ayurvedic management of Malaria-Clinical studies on Ayush-64 conducted in prondy Malarions belt of Tarai Bhawar Zone of Nainital Distt.in U.P.	Seminar on Management of Malaria in Ayurveda, Bhavnagar.	Sept., 85
11.	Tewari. K.C., Tewari, R.N., Pandey, G., Joshi, G.C., Pandey, N.K. and Tewari, D.N.	Herbal cure of Malaria as practiced in Tribals and remote areas of U.P. and North Eastern India.	-do-	-do-
B. Health care Research				
12.	Pandey, G., Tewari, D.N.	Observations on Community Health Care Programme conducted in Almora Distt. under Uttarakhand Himalaya-Applied study pertinent to the malarial aspect.	-do-	-do-

(Contd.)

1	2	3	4	5
C—Medico Botanical Survey and Cultivation				
13.	Billore, K.V., Joseph, T.G., Audichya, K.C. and Chaturvedi, D.D.	Contribution to the medico-botany of keoladev National Park— Bharatpur.	VIIIth Bot. Conf., Hyderabad.	28-30th Dec., 85
14.	Billore, K.V., Yadava, D.B.L.	On the prospects of Cultivation of medicinal plants at Mt. Abu.	Regional Seminar on medicinal plants Western Zone, Junagarh.	30th Jan. to 1st Feb., 86
15.	Billore, K.V.	A note on the conservation and propagation of <i>Guggulu</i> in Rajasthan.	-do-	-do-
16.	Joshi, M.C.	Role of small scale crude Pharmaceutical units in the Development of Pharmaceutical Industry.	Int. Conf. of Traditional Medicine, Madras.	23-25th Jan., 86
17.	Mishra Ratan, Billore, K.V., Yadav, D.B.L. and Chaturvedi, D.D.	Some less known ethno-medicinal plants lores from Hills of Banswara District.	VI IthBot. Conf. of Indian Bot. Society, Hyderabad.	28th-30th Dec., 85

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1	2	3	4	5
18.	Singh, V.K.	Development of medicinal plants in Arunachal Pradesh.	Seminar on Science and Technology for rural development.	17th March, 1986
D. Pharmacognostical and Chemical Research				
19.	Billore, K.V.	Some observation on the identity/ occurrence etc. of <i>Commiphora</i> species.	VIIIth Bot. Conf. of Indian Botanical Society, Hyderabad.	28th-30th Dec., 85
20.	Dey, D. and Das, M.N.	Pharmacognostic evaluation of leaf and bark of <i>Bauhinia racemosa</i> Lam.	73rd Session of Indian Sci. Cong. Pt. III Sec. VI	1986 Ab. No. 220 page 136
21.	-do-	Pharmacognosy of the fruits of <i>Prunus cerasoides</i> D. Don.	-do-	1986 Ab. No. 206 Page 140
22.	Pandey, G., Singh, J., Tewari, K.C. and Tewari,	Itrochemical appraisal of saptaparna—An anti malarial drug of Ayurveda—A cricial review.	Seminar on Management of Malaria in Ayurveda, Bhavnagar.	Sept. 85

(Contd.)

1	2	3	4	5
E. Pharmacology				
23.	Das., P.C., Sarkar, S., Das, A., Islam, C.N., Dutta M.K., Patra B.B. and Siddar, S.	Anti-inflammatory activity of <i>Mangifera indica</i> and <i>Swertia chirata</i> .	Vth. Int. Symp. on Medicinal Aromatic and spice plants, Netherlands.	1985 Ab. No. F 7 Page 51
24.	Nair, R.B., Ravishankar, B., Vijayan, N.P. and Saraswathy, V.	Anti-inflammatory effect of <i>Strobilanthes heyneanus</i> leaves—a biochemical study.	37th Indian Pharmaceutical Congress New Delhi	26-28th Dec., 85
25.	Ravishankar, B., Nair, R.S. and Sasikala, C.K.	Pharmacology of <i>Vitex negundo</i> (<i>Nirgundi</i>) root.	37th Ind. Pharm. Congress, New Delhi	26-28th Dec., 85
26.	Singh, N.	Crude as the future of drugs for stress.	Proceeding* XI Annual Conf. Maharashtra	Sept., 85
27.	Singh, S.P., Singh. N., Dixit, K.S. and Kholi, R.P.	Comparative evaluation of anti- arrhythmic activity of E R 53 and ominidina.	-do-	-do-
28.	Singh, S.P., Dixit, K.S., Srivastava, A.K., Singh N. and Kohli, R.P.	An anthelmintic clinical evalua- tion of Neem (<i>Melia azadirachta</i> extract).	Int. Seminar on Clinical Pharm. in Dev. countries Lucknow	18-14th Jan., 86

(Contd.)

1	2	3	4	5
29.	Srivastava, A.K., Chandra, M., Pandey, S.N., Dixit, K.S., Singh, N., Hussain, A., and Bhargava, K. P.	A preliminary clinical trial of <i>Ocimum sanctum (Tulsi)</i> extract in stress related hypertensive patients.	Int. Seminar on clinical Pharmacology in Developed Contries, held at Lucknow.	13-14th Jan. 1986
E. Drug Standardisation				
30.	Ali, M., Chaudhari, B.G., Dave, K.K., Vachha- rajani, Y.R. and Vasavada, S.A.	Availability need of substitution of the single drugs of plant origin mentioned in the Ayurvedic Formulary of India Part-I.	Regional Seminar on Medicinal Plants, Junagadh.	March, 86
31.	Chaudhari, B.G., Dave, K.K., Vachharajani, Y.R. and Vasavada, S.A.	Availability and identification of <i>Boerhavia verticulata</i> Poirs—a source plant of <i>Punarnava</i> Sveta.	-do-	-do-
32.	Rao, R.B.	The role of standardisation in the identification of certain <i>Vembu</i> varieties of South Indian Raw Drug Trade.	37th Indian Pharmaceu- tical Congress, New Delhi.	26-28th Dec., 85

(Contd.)

1	2	3	4	5
F. Family Welfare				
33.	Kapoor, M.L., Sharma, B.B. and Gupta, D.N.	Anti-fertility screening of plants effect of eight indigenous plants on early and late pregnancy in albino rats.	Int. Conference on Traditional Medicine, Madras	23-25th Jan., 86
34.	Rewal, J.H.	Role of <i>Pippalyadi vati</i> as herbal oral contraceptive.	-do-	-do-
35.	Varshney, M.D., Sharma, B.B. and Kapoor, M.L.	Effect of <i>Rubus ellipticus</i> on the reproductive physiology of female albino rats.	All India Symp, Gwalior	1-3rd Feb., 86
G. Literary Research				
36.	Sannd, B.N.	A short history or Ayurvedic medicinal plants in European and American Literature.	Workshop on selected medicinal plants used in Indigenous Traditional System of Medicine, Bombay.	8-9th Dec., 85

(Contd.)

1	2	3	4	5
37.	Shah, D.C., Sannd, B.N. and Badola, D.P.	Ayurvedic medicinal plants used traditionally in foreign countries.	Workshop on selected medicinal plants used in Indigenous Traditional System of medicine, Bombay.	8-9th Dec., 85
38.	Sannd, B.N., Shah, D.C.	Ayurvedic Medicinal plants as used in Tibetan Medicine.	-do-	-do-

Exhibitions

An exhibition on medicinal plants was arranged during Seminar of Ayurvedic Mahasammelan at Jammu Tawi.

TECHNICAL REPORT—SIDDHA

Abbreviations used for Institutes/Units

<i>S. No.</i>	<i>Name of the Institutes/Units</i>	<i>Abbreviations</i>
1.	Central Research Institute Siddha, Madras.	CRISM
2.	Regional Research Institute Siddha, Pondicherry.	RRISP
3.	Clinical Research Unit Siddha, Palayamkottai.	CRUSP
4.	Clinical Research Unit Siddha, New Delhi.	CRUSD
5.	Clinical Research Unit Siddha, Trivandrum	CRUST
6.	Mobile Clinical Research Unit, Siddha, Madras.	MCRUSM
7.	Drug Research Scheme (Multi-Disciplinary), Madras.	DRS (MD) M
8.	Drug Standardisation Research Unit, Madras.	DSRUSM
9.	Preliminary Standardisation Research Unit, Siddha, Bangalore.	PSRUSB
10.	Preliminary Standardisation Research Unit, Siddha, Trivandrum.	PSRUST
11.	Tribal Health Care Research Project, Siddha, Tirupathur North Arcot Distt., Tamil Nadu.	THCRPST
12.	Tribal Health Care Research Project, Siddha, Kalasa, Chikmangaloor Distt., Karnataka.	THCRPSB
13.	Survey of Medicinal Plants Unit, Siddha, Palayamkottai	SMPUSP
14.	Literary Research and Documentation Department, Siddha, Madras.	LRDSM

CLINICAL RESEARCH

CLINICAL RESEARCH

Clinical Research is being carried-out on a variety of clinical conditions at the Institutes/Units of the Siddha System of Medicine functioning under the Council. Clinical conditions studied during the reporting period includes *Valigunmam* (Peptic ulcer), *Putrunoi* (Cancer), *Manjal kamalai* (Infective hepatitis), *Sandhi vatha soolai* (Rheumatoid arthritis), *Kalanjaga pedai* (Psoriasis), *Vellainoi*, *Peruvaeeru*, *Gunmam*, *Velluppu noi* (Anaemia), *Kukkai vallippu*, *Kazhichal*, *Venkuttam*, (Leucoderma) *Neerazhivu* (Diabetes mellitis) *Oothal noi*, *Karappan noi* (Skin diseases).

The profile of research work carried out on the clinical conditions is provided hereunder :—

Valigunmam

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, Madras to study the effect of *Thambiram* in this condition. The cases having pain in the abdomen in relation to food, discomfort in the epigastric region nausea, vomiting, eructation, haematemesis, reduction in body weight are selected for trial. The diagnosis was further confirmed by FTM and Barium meal X-ray reports. *Tambira chendooram* prepared using *Karunthulast charu* and *Tambiram* 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 91 cases studied during the reporting year. This course was repeated twice. The clinical assessment was made after each course of the treatment. No side/toxic effects were noticed during the treatment. The details of results of treatment are reported hereunder :—

Table

Drug	Results of treatment					
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	LAMA	Total
Tambira chendooram (P 6,)	45	31	3	1	11	91

Manjal Kamalai

Manjal Kamalai (Infective hepatitis) is one of the 13 varieties of *Kamalai* described in the Siddha Literature. *Manjal Kamalai* was studied at Central Research Institute, Madras, using the *Kalkam* made of *Keezhanelli* and *manjal Karisalai elai* and coded as *k₃*. The drug was administered in the dose of 5 gm. two times a day with water in all the 41 cases selected for the trial. All the cases were also provided *Thulasi elai Kalkam* and *Kozhi avarai Kalkam* in suitable doses depending upon the condition of the cases. 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

Drugs	Results of treatment					
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	LAMA	Total
K3, Thulasi kalkam, Kozhi avarai Kalkam	15	15	5	1	5	41

Putrunoi

Putrunoi (Cancer) is described in Siddha texts under the head '*Viranoigal*'. This is described as *Putru* and it is named after the affected organism (i.e.) if the breast is affected it is called *Mulai Putrunoi*. The study was undertaken at Central Research Institute, Madras to study the efficacy of Siddha drugs in the cases of *putrunoi* using the coded drugs *RGX* consisting of mercury, sulphur

and *Serankottai* (*Semicarpus anacardium*), *VK2* consisting of *Venkodiveli* (*Plumbago zelanica*) and *SKX* consisting of fried nuts of *Serankottai* (*Semicarpus anacardium*). These drugs were administered in suitable doses depending upon the severity of the disease. 250 mg. of *Linga chendooram* was also administered with honey as a supporting therapy. Ulcers, Tumours etc. were dressed with *Nithiyakalyani elai Kalkam* and *Pachatennai with thurusu*. 94 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 being followed at out patient department of the Instt. Out of the 94 cases treated. 37 cases were of *Yoniputru* (Cervix uteri), 13 cases of *Kannaputru* (Cancer cheek) and 9 cases of *Mulai Putru* (Cancer breast). Reduction of the size and growth of the ulcer, tumours, reduction or stop of the discharges and also reduction of pain in almost all the cases were noticed.

Sandhi vatha soolai

Sandhi vatha soolai is equated to Rheumatoid arthritis in modern parlance. It is one of the 80 varieties of *Vatha* diseases described in Siddha System of Medicine. A study to evaluate the effect of *Gowrichintnamani* and *Linga chendooram* in the management of *Sandhi vatha soolai* was taken up at Central Research Institute, Madras. 300 mg. each of *Gowrichintnamani* and *Lingachendooram* with honey two times a day was administered in all the 55 cases studied during the reporting period. Tamarind, and chillies free diet with less salt was advised to these cases. *Kukil thailam/Mynathailam* was used externally on the affected parts. The details of results of treatment are reported hereunder :—

Table

Drugs	Results of treatment					Total
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	LAMA	
Gowrichinthamani	—	8	28	4	15	55
Linga chendooram 300 mg. each						

The drug appears to possess anti-inflammatory activity since inflammation subsides within 15 days of the treatment with these drugs. No side/toxic effects were noticed.

Kalanjaga padai

Kalanjaga padai (Psoriasis) has been taken up for trial using 777 oil, a coded drug formulated by the Central Research Institute, Madras. 10 ml. of 777 oil with milk was administered in two divided doses in all the 77 cases selected for study. The patients were advised to apply oil externally on the affected parts of the body. The details of results of treatment are reported hereunder :—

Table

Drugs	Results of treatment					Total
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	LAMA	
777 Oil	2	29	31	17	18	97

No side effects or toxic effects were noticed except recurrence of mild nature in few cases.

Venkuttam

Venkuttam (Leucoderma) has been described in Siddha texts as one of the *Kuttanoigal*. Response of certain elected Siddha drugs was studied in the cases of this disease at Clinical Wing of the Drug Research Scheme (MD), Madras. The details of results of treatment are reported hereunder :—

Table

Drugs	Results of treatment						Total
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	No LAMA Rel.	LAMA	
Ponnimilai chendooram with honey.	—	—	1	16	19	6	42
Ponnimilai chandooram, Chirattai-thailam	1	1	1	1	2	—	6
Ponnimilai chendooram, Karbogi paste	—	—	1	1	1	—	3
Aya chendooram Chirattai thailam	—	—	1	2	—	—	3
Kandankathiri chooram, Kandan kathiri ennai	—	—	—	4	10	5	19

Velluppunoi

Velluppu noi (anaemia) is described in Siddha texts in five varieties. They are *Vatha*, *Pitha*, *Kapha*, *Mukkuutra* and *Vida Valluppunoigal*. Studies on these disease condition were conducted at Regional Research Institute, Pondicherry and Clinical Research Unit, Palayamkottai. A total number of 154 cases have been treated adopting different therapeutic approaches. The following table summarises details related to the line of approach and the number of cases treated together with the results.

Table

Drugs	Results of treatment					Total
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	LAMA	
Aya bangaraja karpan 260 mg. three times a day	24	5	5	—	3	37
Aya bangaraja Karpan 170 mg. and Kantha chendooram 65 mg. three times a day	33	16	—	—	10	59
Annabedi chendooram 250 mg. three times a day	17	15	15	2	19	58

Gunmam

Eight types of *Gunmam* has been described in Siddha texts. According to the Siddha texts the disease occurs due to irregular dietetic habits, hot and spicy food and alcoholic addition. It also occurs due to stress and strain. Due to this *Vatha* and *Pitha* humours gets vitiated resulting in loss of appetite, dyspepsia, pain in the epigastric region and vomiting etc. The study of this clinical condition was carried out at Regional Research Institute, Pondicherry using different drugs. Details of the result of treatment are reported hereunder :—

Table

Drugs	Results of treatment					Total
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	No LAMA Rel.	
Uppu chendooram No. 165 mg. thrice a day	26	12	—	—	—	54
Uppu chendooram No. 1 (65 mg.) and Gunmakudori Mezhuugu one gm thrice a day	11	11	—	—	1	30

Kazhichal

Kazhical is identifiable with digestive disorders in modern parlance. The study was conducted at Regional Research Institute, Pondicherry and Clinical Research Unit Palayamkottai. The selection of the cases was done on the basis of Siddha methodology, pathological and biochemical investigations were also carried out to support the clinical findings. The Regional Research Institute, Pondicherry carried out the study to evaluate the effect of *Their chundi Choornam* at the dose-level of two grams two times a day with warm water for seven days in this condition. All the three cases studied during the period under review got complete relief.

The Clinical Research Unit, Palayamakottai had studied effect of *Padiga linga thubar* on *Kazhichal* (Digestive disorders). In 15 cases using *Padiga linga thubar* at the dose of 500 mg three times a day with *Ehumi chem pazha charu* (Lime Juice) were studied. Out of the 15 cases, 12 cases got complete relief and 3 cases left the study against medical advice.

Oothalnoi

Siddha texts describes four varieties of *Oothalnoi* on the basis of *Mukkutra Verupadugal*. Consumption of hot and spicy food, spoiled and poisoned food, food containing ashes, mud and other impurities are some of the etiological factors responsible for causation of this disease condition. This clinical condition is also found associated with *Velluppunoi Senni*, poisonous bite like snake bite etc. *Vapa* humour gets vitiated in this clinical condition. The study was conducted at Regional Research Institute, Pondicherry using different drugs, details of which together with the results of treatment are reported hereunder :—

Table

Drugs	Results of treatment					Total
	Com. Relief	Marked Relief	Mod. Relief	Mild Relief	LAMA	
Vediuppu chunnam (130 mg) with Mullangi charu twice a day	21	7	—	—	10	38
Vediuppu chunnam (130 mg.) with Mullangicharu and Mandoorathi Adai Kudineer (60 ml.) twice day	—	—	—	—	3	3

Vellai noi

Vellai noi or *Vellai t'ieettu* was taken up for study at Regional Research Institute, Pondicherry. The study was conducted with *Kedukkai Kudineer* Peechchu (douche) in nine cases. Out of this, six cases got complete relief and three cases got marked relief.

Murai jwaram

Murai jwaram (Periodic fever) was taken up for study at the Clinical Research Unit, Palayamkottai. *Linga chendooram* at the dose level of 250 mg. with honey was administered three times a day in six cases admitted in the In Patient Department of the unit. Out of these six cases, three cases, got complete relief and one case got marked relief while two cases discontinued the study against medical advice.

Kakkai valippu

The Clinical Research Unit, Palayamkottai carried out the study on *Kakkai Valippu* equated to Epilepsy in Modern parlance. 5 to 10 drops of *Pachonchi sudar thailam* was administered with *Inji charu* (Ginger juice) two times a day for 40 to 50 days in all the cases taken up for study depending upon their condition. Out of

the 12 cases treated during the reporting year, five cases got marked relief, two cases got moderate relief and one case got mild relief while remaining four cases discontinued the study against medical advice.

Peruvaeru

Siddha texts describes 32 varieties on *Peruvaesru*. These are *Vatha, Pitha, Kapa, Mukkutra, Vatha, Kapa, Pitha Kapa, Kāl, Vīl, Vazhuvai, Nazhuvai, Neerambal, Oorambal, Veopupavat, Kulaimutti, Keezhi Kavisai, Mal kavisai, Pakka kavisai, Pazhu kavisai, Sool, Vallai, Nachchu, Velluppu, Vceingu, Manjal, Gunma, Ma, Amai, Manneeral, Sura, Neer, Sathai*. This study was conducted at Regional Research Institute, Pondicherry using *Vediuppu chunnam* in the doses of 130 mg. three times a day for 21 days in five cases. *Karumbucharu* was used as vehicle. To enhance the action of the drug a *Kanchi* (Purge) consisting of *Vellari paruppu, Moolampazha paruppu* and *Tharboosana paruppu* was advised. Out of these five cases, one case each got complete relief and marked relief while the remaining three cases discontinued the study against medical advice.

Neerazhivu

Neerazhivu is described under *Serunder perukkumolgal* in Siddha literature. *Neerazhivu* is equated to Diabetes mellitus in modern parallance.

The study on *Neerazhivu* using *Abraga chendooram* was carried, out at Clinical Research Unit functioning at Safdarjung Hospital New Delhi.

49 cases attended the unit during the reporting year out of which 17 cases did not co-operate and were excluded from the study, six cases of the remaining 32 cases were kept on Diet control (1800 calories per day). Rest of the 26 cases were divided in two groups. First group consisting of 14 cases was treated with *Abragachendooram* in the dose of 200 mg. two times a day and the second group consisting of 12 cases was treated with *tablet daonil* in the dose of 5 mg two times a day. Out of the 14 cases treated with *Abraga*

Chendooram three cases showed marked control, nine cases showed moderate control and two cases had no control while out of the 12 cases treated with tablet *Daonil*, three cases showed marked control, two cases showed moderate control and seven cases did not show any control. It has also been observed that the cases treated with *Abragachendooram* did not show rise in blood sugar level even after the drug is withdrawn. The study is in progress.

The Clinical wing of Drug Research Scheme (MD), Madras studied the effect of different Siddha drugs on Neerazhivu (Diabetes mellites) in 18 cases. The following table summarises the details related to the line of approach and the number of cases treated together with the results :—

Table

Drugs	Results of treatment						Total
	Com. Relief	Marked Relief	Mod. Relief	Mild. Relief	No LAMA Rel.		
Abraga chendoo-ram (500 mg.)	—	—	—	4	4	2	10
Lavanga pathiri choornam (4 gm.)	—	1	2	2	2	1	8
Abraga chendoo-ram (200 mg.)	—	3	9	—	2	—	14
Tal. Daonil (5gm.)	—	3	2	—	7	—	12

Statement Showing Patients attended at OPD and IPD

Sl. No.	Institute/Units	No. of patients attended at OPD			No. of patients admitted in I.P.D.
		New	Old	Total	
1.	C.R.I. (S), Madras	10367	16566	26933	535
2.	R.R.I. (S), Pondicherry	7060	15899	22959	272
3.	C.R.U. (S), Palayamkottai	796	6346	7142	94
4.	C.R.U. (S), of D.R.S. (M.D.), Madras	91	—	91	—
5.	C.R.u. (S), New Delhi	49	248	297	—
Total		18,363	39,059	57,922	901

HEALTH CARE RESEARCH PROGRAMME

HEALTH CARE RESEARCH PROGRAMME

Health and medicare of the people living in rural/tribal areas still remains a great problem inspite of tremendous technological development in our country. The Council has launched Mobile Clinical Research Programme to Study the health status, environment conditions, diet habits and their impact on health, disease incidence etc. The Tribal Health Care Research Programme has been taken up recently in order to pay specific attention to the health care problems of the tribal people.

(A) Mobile Clinical Research Programme

The work carried out under this programme by Mobile Clinical Research Unit functioning at Central Research Institute, Madras and Regional Research Institute, Pondicherry is reported here under :—

MCRUSM

During the period under review, the unit has conducted survey of seven tribal pocket of Shervarayan hills (Yercard) and covered 985 individuals. Efforts were made to educate the village folk through group discussions/lectures regarding the ways and means for maintenance of health and prevention of disease, utilisation of herbal resources for the relief of common ailments. Medical aid was extended to 469 individuals. *Moolam, Neer Kovai, Kudarpazhu noigal, Soori, Sirangu, Kazhichal, Vallai noi Muttu vali, Keelvayu Uppisam, Kanakkadi* etc. are some of the diseases found common in the area of operation.

RRISP

During the reporting period, the unit has conducted survey of two villages Embalam, Sembianpalayam situated within a radius