

[Handwritten signatures and scribbles]
Res. Officer (Ay.)
CCRAS, New Delhi

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

24

[Handwritten signature]
Dr. Subhan Singh
Research Officer (Ay.)
C.C.R.A.S., New Delhi

ANNUAL REPORT

1997-98



(Department of Indian System of Medicine & Homoeopathy)

MINISTRY OF HEALTH AND FAMILY WELFARE
(Government of India)
New Delhi

Asstt. Res. Officer (Ay.)

CCRAS, New Delhi

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

ANNUAL REPORT

1997-98



(Department of Indian System of Medicine & Homoeopathy)

**MINISTRY OF HEALTH AND FAMILY WELFARE
(Government of India)
New Delhi**

CONTENTS

S.No.	Subject	Page
I.	Preface	(v)
II.	Administrative Report	1
III.	Technical Report	10
A.	AYURVEDA	
1.	Abbreviations used for Institutes/Centres/Units	10
2.	Clinical Research Programme	13
(a)	Clinical Therapeutic Trails	
(b)	Statement showing disease groups. number of patients studied and participating projects during 1997-98	29
(c)	Statement of the patients attended at OPD and admitted/discharged in the IPD during 1997-1998.	30
(d)	Health Care Research Programme	31
3.	Medico-Ethno-Botanical Survey Programme	38
4.	Cultivation of Medicinal Plants	44
5.	Musk Deer Breeding Programme	48
6.	Pharmacognosy Research Studies	49
7.	Plant Tissue Culture	51
8.	Chemical Research Programme	53
9.	Pharmacological Research Programme	58
10.	Drug Standardization Research Programme	63
11.	Literary Research Programme	66

12.	Anchi Research Unit	69
13.	Family Welfare Research Programme	70
14.	Publications/Participations	76
B.	SIDDHA	
1.	Abbreviations used for Institutes/Units	91
2.	Clinical Research Programme	92
3.	Health Care Research Programme	98
4.	Medico-Botanical Research Programme	99
5.	Pharmacognosy Research Programme	101
6.	Pharmacology Research Programme	102
7.	Pharmaceutical/ Standardization Research Programme	104
8.	Pharmacy	108
9.	Literary Research Programme	109
IV.	Acknowledgement	115

PREFACE

The Central Council for Research in Ayurveda and Siddha, an autonomous body under Department of ISM&H, Ministry of Health and Family Welfare, Government of India is an apex body in India for the formulation, co-ordination, development and promotion of research on scientific lines in Ayurveda and Siddha. The Council carries out its objects and functions through the network of Research Institutes and Centres functioning under its direct control and through a number of Units located in Universities, Ayurveda/Siddha and Modern Medical Colleges etc., in different parts of the country. A brief review of the work carried out under different research programmes during the reporting period is reported hereunder:

Clinical Research Programme

Clinical conditions studied in Ayurveda during the reporting period include Amavata (rheumatoid arthritis), Paksavadha (hemiplegia), Gridhrasi (sciatica), Saisaviyavata (poliomyelitis), Amlapitta (hyperacidity), Parinamasula (duodenal ulcer), Annadravasula (gastric ulcer), Bhagandara (fistula-in-ano), Tamaka swasa (bronchial asthma), Swetapradara (leucorrhoea), Madhumeha (diabetes mellitus), Mutrakricchra (dysuria), Vyanbalvaishmya (hypertension), Hridroga (ischaemic heart diseases), Slipada (filariasis), Visamajwara (malaria) etc.

Clinical conditions under Siddha System of Medicine studied during the reporting period include Valligunmam (peptic ulcer), Putrunoi (cancer), Manjalkamalai (infective hepatitis), Sandhivatha soolai (rheumatoid arthritis), Kalanjaga padai (psoriasis), Vellainoi (leucorrhoea), Gunmam (intestinal disorders), Velluppunoi (anaemia), Venkuttam (leucoderma), Neerazhivu (Diabetes mellitus).

During the execution of this programme, medical aid to 3,25,226 patients through Out Patient Departments and 2,032 patients through In-door Patient Departments functioning at different Institutes/Centres/Units of the council have been provided.

Health Care Research Programme

Health Care Research Programme carried out by the Council include Service Oriented Survey and Surveillance screening programme, Community Health Care Research Programme and Tribal Health Care Research Programme. These programmes are modulated to have rural basis so that benefits of the research programme carried out can reach the grass root level. Under these programmes, teams of research personnel visit each and every house in the villages/tribal pockets selected/adopted and provide incidental medical aid besides collecting data pertaining to the nature and frequency of prevalent diseases, food habits with regard to different seasons, socio-economic status, natural resources, the standard and types of treatment available to the rural/tribal folk. During the period under report a population of 1,14,239 individuals pertaining to 61 villages including 17 tribal pockets have been covered under this programme and incidental medical aid provided to 26,789 patients.

Drug Research Programme

The Drug Research Programme consists of Medico-botanical Survey, Cultivation of Medicinal Plants, inter-disciplinary research programmes like, Pharmacognostic, Chemical, Pharmacological and Toxicological studies, besides Drug Standardization studies. Under Medico-botanical Survey Programme, Local survey tours were conducted for collection of raw drug material for use in OPD/IPD and supply to other Institutes/Centres/Units of this Council besides supply to projects carrying out the work related to the laying the Pharmacopoeial Standards under centrally sponsored scheme and PLIM, Ghaziabad. The Survey Units have also taken up maintenance work of their Herbarium and Museum. About 450 medicinal species are presently growing in different Gardens. Pharmacognostical studies of 9 drugs, Chemical studies of 14 drugs and Pharmacological and Toxicological studies of 33 drugs used in Ayurveda and Siddha System of Medicine have been carried out during the reporting period. The council is also maintaining a Musk Deer Breeding Farm at Mehrori in Kumaon Hills and there were 20 animals at the end of reporting period.

Under Drug Standardization Research studies 84 single drugs were studied besides phytochemical studies of 4 drugs. Analytical standards were laid down for 16 formulations used in Ayurveda and Siddha.

Literary Research Programme

Literary Research Programme broadly covering medico-historical studies, collection and compilation of references relating to drugs and diseases from classical treatises, lexicographic works, contemporary literature and publications of Ayurveda, Siddha and Modern Sciences continued further. The Council is bringing out "Journal of Research in Ayurveda & Siddha", "Bulletin of Medico-Ethno-Botanical Research", "Bulletin of Indian Institute of History of Medicine" besides the "News letter". During the reporting period three books/Monographs were published.

Family Welfare Research Programme

Clinical screening and Pharmacological studies of the oral contraceptive agents are being carried out under this programme. 372 new cases were studied besides 433 old cases carried forward from the previous year for clinical evaluation of oral contraceptive agents like AYUSH- AC IV, K capsule, Pippalyadi yoga, Neem oil and Vandhyavari (*Vicoa indica*). Pharmacological studies on six drugs have been carried out.

The Council's officials were the recipients of Awards from the Council as well as other august organisations for the outstanding research work carried out by them in various field under the aegis of the Council.



(Prem Kishore)

Director
and

Member-Secretary
Governing Body (CCRAS)

Dated: 2nd Feb., 1998

ADMINISTRATIVE REPORT

The Central Council for Research in Ayurveda and Siddha is a Society registered on 30th March, 1978 under the Societies Registration Act XXI of 1860. During the period under report ending 31st March, 1998, the membership of the Society and Governing Body of the Council were as under:

From 1.4.1997 to 13.5.1997

President

1. Sh. Salim Iqbal Sherwani,
Minister of State for Health & F.W.

Vice President

Official Members

1. Secretary (ISM&H)
Ministry of Health & F.W.

Smt. Shanta Shastri,

2. Joint Secretary (ISM&H)
Ministry of Health & F.W.

Shri Pradeep Bhargava

3. Joint Secretary (FA)

Shri Vijay Singh

4. *Non-Official Members*

1. Vd. B.D. Triguna
2. Dr. Nanak Chand Sharma
3. Shri P.K. Warriar
4. Vd. S.K. Mishra
5. Dr. S.T. Gujjar
6. Vd. Prof. V.J. Thakur
7. Dr. R. Kannan
8. Dr. G. Vaitheswaran
9. Prof. P.K. Das
10. Prof. A.N. namjoshi

Director, NIA, Jaipur

..... Ex Officio

6. Director, NIS, Chennai Director of the Siddha Medicines in Govt. of Tamilnadu. Directorate of Indian System of Medicines, A.A. Hospital Campus, Chennai - 600106

7. Member-Secretary Dr. H.R. Goyal, Director, CCRAS.

From 14.5.1997 to 31.3.1998

President : (I) Smt. Renuka Chowdhary,
Minister of State for Health & Family Welfare upto 17.3.1998.

(II) Shri Dalit Ezhamalaiah,
Minister of State for Health & Family Welfare

Vice-President : Vd. B.D. Triguna

Official Members :

1. Secretary (ISM&H) : Smt. Shanta Shastri
Ministry of Health & F.W.

2. Joint Secretary (ISM&H) : Shri Pradeep Bhargava

3. Joint Secretary (FA) : Shri Vijay Singh

Non-Official Members : 1. Prof. S.K. Changani
2. Dr. G.P. Dubey
3. Dr. Kulwant Singh
4. Vd. D.K. Triguna
5. Vd. Balendu Prakash
6. Sh. Harinarayan Swami
7. Dr. Jaiprakash Narayan
(Expert in Pharmacology)
8. Prof. A.N. Namjoshi
(Expert in Pharmacology)

- | | |
|---------------------------|--|
| | 9. Prof. S. Shantamma
(Expert in Botany) |
| | 10. Prof. S.K. Sarin |
| | 11. Dr. J.R. Krishnamoorthy
(Experts in Siddha) |
| | 12. Dr. V. Suba Laxmi |
| 4. Director, NIA, Jaipur | Dr. C.H.S. Shastri |
| 5. Director, NIS, Chennai | Vacant |
| 6. Member-Secretary | Dr. H.R. Goyal, Director, CCRAS. |

Executive Committee :

The Executive Committee was constituted on 14.5.1998 and consisted of the following:

- | | |
|---|------------------|
| 1. Vd. B.D. Triguna | Chairman |
| 2. Sh. Pradeep Bhargava
Joint Secretary (ISM&H)
Ministry of Health & F.W. | Member |
| 3.
Joint Secretary (F.A)
Ministry of Health & F.W. | Member |
| 4. Prof. S.K. Changani | Member |
| 5. Dr. Balendu Prakash | Member |
| 6. Dr. J.R. Krishnamoorthy | Member |
| 7. Dr. H.R. Goyal, Director, CCRAS | Member-Secretary |

During the period under report, the 1st meeting of Executive Committee was held on 29.9.1997 and some important decision were taken:

1. Approved the transfer policy and modalities in respect of Officers and staff of CCRAS.
2. Approved the short-term Research Scheme submitted by Vd. Balendu Prakash, Dehradun titled "Effect of metal based formulations in the patients of Acute Promycocytic Leukaemia."

3. The Committee has also directed the Council to take up a scheme for institution of "Good Clinician Award" for at least 10 Physicians every year for their outstanding achievement.

Finance Committee

The Standing Finance Committee consisted of the following:

- | | | |
|----|--|----------|
| 1. | Sh. Pradeep Bhargava
Joint Secretary (ISM&H)
Ministry of Health & F.W. | Chairman |
| 2. | Sh. Vijay Singh
Joint Secretary (FA)
Ministry of Health & F.W. | Member |
| 3. | Dr. D.K. Triguna
(To represent Ayurveda) | Member |
| 4. | Dr. V.Suba Laxmi
(To represent Siddha) | Member |

During the period under report, the Standing Finance Committee met twice on 27.6.1997 and 4.3.1998 and considered and approved proposals related to the financial matters.

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

The Council is following the orders and guidelines issued from time to time by the Government of India in respect of reservation and representation of SC/ST in the services of the Council. The recruitment/promotion is done according to the roster points. The Council is having a total strength of 1572 employees and number of SC/ST employees in different groups on 1.1.1998 is as under (Upto 31.11.1997):

Group	Number of employees	SC	%age of total employees	ST	%age of total employees
A	146	16	10.96	6	4.11
B	196	12	6.12	2	1.02
C	556	89	16.00	28	5.04
D	674	236	35.01	67	9.94
Total	1572	353	22.46	103	6.55

The Council is having nine Tribal Health Care research Projects (seven in Ayurveda and two in Siddha) which have been specially located in tribal pockets. The programme launched by these Projects envisage great scope not only to understand the local health problems and interdependent 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 and through OPD/IPD of these Institutes/Centres and under Mobile Clinical Research Programmes/Community Health Care Research Programme, Medical Relief and Health benefit 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 17.7.97 and 9.3.98.

Scientific Advisory Committee (Ay.)

During the year under report, the Scientific Advisory Committee (Ayurveda) consisted of the following:

1.	Dr. Jaiprakash Narayan	Chairman
2.	Dr. S.K. Mishra	Member
3.	Dr. Balendu Prakash	Member
4.	Dr. J.K. Ojha	Member
5.	Dr. Devinder Tirguna	Member
6.	Dr. Ghanshyam Mishra	Member
7.	Dr. P.K. Warriar	Member
8.	Prof. Siddhinandan Mishra	Member
9.	Prof. A. Namjoshi	Member
10.	Dr. S.K. Upadhyaya	Member
11.	Dr. Ram Kishan Sharma	Member
12.	Dr. Raghunandan Sharma	Member

13. Dr. R.C.D. Nautiyal	Member
14. Dr. S.R. Vatsa	Member
15. Dr. S.K. Sharma	Member
16. Director, CCRAS	Member Secretary

During the period under report, the Scientific Advisory Committee (Ay.) met on 23/1/98 and evaluated the programmes and provided necessary guidance.

Scientific Advisory Committee (Siddha)

During the year under report, the Scientific Advisory Committee (Siddha) consisted of the following:

1. Dr. J.R. Krishnamoorthy	Chairman
2. Dr. A. Anand Kumar	Member
3. Dr. V. Subramanian	Member
4. Dr. Subba Laxmi	Member
5. Dr. K. Raghunathan	Member
6. Dr. Rajinder Gupta	Member
7. Dr. Kumaradas	Member
8. Dr. Kumaran	Member
9. Director, CCRAS	Member

During the period under report, the Scientific Advisory Committee (Siddha) met on 13.1.98 and 25.3.98 and evaluated the programmes and provided necessary guidance.

Organisational Network of CCRAS

There are 5 Central Research Institute, 7 Regional Research Institutes, 10 Regional Research Centres, 27 Research Units, Six Tribal Health Care Research Projects, One Documentation and Publication Division, 12 Family Welfare Research Projects and one Research Projects on Tibetan medicine functioning under Ayurveda besides one Central Research Institute, one Regional Research Institute, 10 Research units, two Tribal Health Care Research Projects and one Siddha medicinal Plants Garden in Siddha System of Medicines.

Budget Provision

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

Scheme	Budget estimates 1997-98	Funds released 1997-98	Actual exp. 1997-98
		(Rupees in Lakha)	
Plans	520.00	495.00	520.00
Non-Plan	1547.00	1547.00	1525.00
F.W.R.S.	35.00	34.90	34.98

Audited Statement of Accounts

The Accounts of the Council for the year 1997-98 for the period from 1st April, 1997 to 31st March, 1998 is being taken up by the D.A.C.R. for audit.

Exhibitions/Seminars/Workshops/Establishments

- (A) **Participation in "Mystique India-97"**. The council participated in "Mystique India-97" exhibition held from 20th October, 1997 at Pragati Maidan, New Delhi and organised an exhibition on Ayurveda & Siddha systems of medicine. The exhibition was visited by Hon'ble State Minister of Health & Family Welfare, Smt. Renuka Choudhary and a number of distinguished scientists from various parts of India including foreigners. The exhibition highlighted the efforts of the Council in providing scientific footing to various Ayurvedic therapies and concepts. The therapies like Pancakarma, Ksarasutra, Jalauka were explained to the visitor through visual charts etc. and photographs as well as green herbs in flower pots were displayed and their common uses introduced.
- (B) **"Perfect Health Mela '97"**. The Council participated in "Perfect Health Mela'97" organised by Health Care foundation, Delhi Govt. and Mool Chand Khairati Ram Hospital, New Delhi from 26th Sept., to 2nd Oct. 1997. It organised free medical check up and distributed medicines also. Pamphlets explaining preventive aspect of Dengue fever were also distributed to educate visitors for its prevention.
- (C) **Participation in India International Trade Fair-97**. The Council participated in the exhibition at Pragati Maidan, New Delhi from 14-27 Nov., 1997. A team of Council's Physicians provided consultancy

services to the patients and suitable cases for family welfare were referred to CRI, New Delhi for detailed examination.

- (D) **Silver Jubilee Celebration of CRI (Siddha), Chennai.** Silver Jubilee Celebration of Central Research Institute (Siddha), was held on 26-3-98 at Chennai. The function was inaugurated by Thiru Arcot N. Veeraswamy, Hon'ble Minister of Health & Family Welfare and Electricity, Government of Tamil Nadu. During the function two books namely (i) Theraiyar Kudineer translated version of a classical book and (ii) Activities & Achievements of C.R.I. (S) were released.
- (E) **Seminar on Neerazhivu (Diabetes mellitus).** The Council has organised a seminar on "Neerazhivu (Diabetes mellitus)" during 26th & 27th March, 1998 at the CRI(S) Chennai on the occasion of Silver Jubilee Celebration. It was inaugurated by Dr. P.N.V. Kurup, Former Advisor (ISM), Govt. of India and Founder Director of CCRIM & H. It was presided over by Dr. J. Krishnamoorthy, Chairman SAC (S). Eminent scientist belonging to Siddha, Ayurveda & Other allied sciences including modern medicine delivered guest lectures. 35 research papers were presented by the council's scientist.

Training Programme on Ksarsutra & Pancakarma

A Two months re-orientation training programme on Ksarsutra and Pancakarma was organised at CRI, New Delhi and IIP, Cheruturuthy, respectively, sponsored by Deptt. of ISM & H, Min. of Health & Family Welfare. During the training programme the participants were given theoretical as well as practical training.

Establishment of Ay. Chikitsa Kendra

Ayurvedic chikitsa Kendra was inaugurated on January 14, 1998 at Safdarjung Hospital, New Delhi.

APML scheme launched

A Grant-in-aid scheme on the effect of metal based formulations in the patients of Acute Promyelocytic Leukaemia has been launched at CRI, New Delhi in the month of Nov., 1997. Vd. Balendu Prakash, Member, Executive Committee and SAC is the Principal Investigator of this scheme.

Donation Recorded

Lok Kalyan Prishad, Indira Colony, Bani Park, Jaipur had donated a building for clinical research purposes to RRI, Jaipur on 20-8-97.

Prevention of Dengue Fever

The Council held a special programme on prevention of dengue fever at CRI, New Delhi during Oct-Nov., 1997. During the programme the ways and means for prevention of Dengue fever were extended to the public atlarge and preventive methods were provided to the patients.

TECHNICAL REPORT - AYURVEDA

Abbreviations used for Institutes/Centres/Units

S.No	Institutes/Centres/Units	Abbreviations
1.	Central Research Institute [Ay.], New Delhi	CRID
2.	Central Research Institute [Ay.], Bhubneshwar	CRIB
3.	Central Research Institute [Ay.], Mumbai	CRIM
4.	Indian Institute of Kayachikitsa, Patiala	IIKP
5.	Indian Institute of Panchakarma, Cheruthuruthy	IIPC
6.	Regional Research Institute [Ay], Calcutta	RRIC
7.	Regional Research Institute [Ay], Patna	RRIP
8.	Regional Research Institute [Ay], Lucknow	RRIL
9.	Regional Research Institute [Ay], Gwalior	RRIG
10.	Regional Research Institute [Ay], Jaipur	RRIJ
11.	Regional Research Institute [Ay], Junagadh	RRIJU
12.	Regional Research Institute [Ay], Trivandrum	RRIT
13.	Regional Research Centre [Ay], New Itanagar	RRCI
14.	Regional Research Centre [Ay], Guwahati	RRCGa
15.	Regional Research Centre [Ay], Gangtok	RRCG
16.	Regional Research Centre [Ay], Mandi	RRCM
17.	Regional Research Centre [Ay], Jammu	RRCJ
18.	Regional Research Centre [Ay], Hastinapur	RRCH
19.	Regional Research Centre [Ay], Jhansi	RRCJH
20.	Regional Research Centre [Ay], Nagpur	RRCN
21.	Regional Research Centre [Ay], Vijayawada	RRCV
22.	Regional Research Centre [Ay], Bangalore	RRCB
23.	Mobile Clinical Research Unit [Ay], Varanasi	MCRUV
24.	Mobile Clinical Research Unit, (Ay.) Jamnagar	MCRUJ
25.	Dr. A.Lakshmiapati Research Centre for Ayurveda, V.H.S. Chennai	ALRCAC
26.	Ayurvedic Research Unit, NIMH&NS, Bangalore	ARUB

27.	Clinical Research Unit, [Ay], Hyderabad		CRUH
28.	Clinical Research Unit, [Ay], Kottakkal		CRUK
29.	Clinical Research Unit, [Ayurvedic and Modern Team under CDRS], Varanasi		CDRSV
30.	Indian Institute of Ayurveda for Drugs Research, Tarikhet		IIADRT
31.	Captain Srinivasa Murthy Drug Research Institute for Ayurveda, Chennai		CSMDRIAC
32.	Jawahar Lal Nehru Ayurvedic Medicinal Plants Garden Herbarium and Museum, Pune		JNAMPGHP
33.	Clinical Research Unit under FWRP, Patiala	✓	CRUFP
34.	Clinical Research Unit under FWRP, Mumbai	✗	CRUFM
35.	Clinical Research Unit under FWRP, Lucknow	✓	CRUFL
36.	Clinical Research Unit under FWRP, Jaipur	✓	CRUFJ
37.	Clinical Research Unit under FWRP, Calcutta	✓	CRUFC
38.	Clinical Research Unit under FWRP, Ahmedabad	✓	CRUFA
39.	Clinical Research Unit under FWRP, Trivandrum	✓	CRUFT
40.	Clinical Research Unit under FWRP, Varanasi		CRUFV
41.	Pharmacological Research unit under FWRP, Jamanagar		PhRUFJ
42.	Pharmacological Research Unit under FWRP, Varanasi		PhRUFV
43.	Pharmacological Research Unit under FWRP, Bhubneshwar	Ⓢ	PhRUFB
44.	Pharmacological Research Unit under FWRP, Trivandrum	✗ ✓	PhRUFT
45.	Pharmacological Research Unit, Calcutta		PhRUC
46.	Pharmacological Research Unit, Lucknow		PhRUL
47.	Pharmacological Research Unit, Jaipur		PhRUJ
48.	Pharmacological Research Unit, Varanasi		PhRUV
49.	Pharmacological Research Unit, Delhi		PhRUD
50.	Pharmacological Research Unit, Trivandrum		PhRUT
51.	Toxicity Research Unit, Jhansi		TRUJh
52.	Chemical Research Unit, Calcutta		ChRUC
53.	Chemical Research Unit, Varanasi		CHRUV
54.	Chemical Research Unit, Hyderabad		CHRUH

55.	Chemical Research Enquiry, Hyderabad	ChRUH
56.	Pharmacognosy Research Unit, Calcutta	PcRUP
57.	Pharmacognosy Research Unit, Pune	PcRUP
58.	Indian Institute of History of Medicine, Hyderabad	IIMH
59.	Literary Research Unit, Chennai	LRUC
60.	Documentation and Publication Division, New Delhi	DPDD
61.	Tribal Health Care Research Project [Ay], Car-Nicobar	THCRPC
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], Nagpur	THCRPN
66.	Tribal Health Care Research Project [Ay], Jagdalpur	THCRPJa
67.	Tribal Health Care Research Project [Ay], Imphal [Manipur]	THCRPI
68.	Drug Standardization Research Project, Jamnagar	DSRPJ
69.	Drug Standardization Research Project, Varanasi	DSRPV
70.	Research Project in Tibetan System of Medicine, Leh	RPTSML
71.	Medicinal Plant Garden at RRC, Itanagar	MPGI

CLINICAL RESEARCH PROGRAMME

The clinical Research studies on Amavata (rheumatoid arthritis), Paksavadha (hemiplegia), Saisaviyavata (Post-polio paralysis), Parinama sula (doudenal ulcer) Annadrava Sula (gastric ulcer), Arsa (piles), Madhumeha (diabetes mellitus), Mutrasmari (urolithiasis), Hridroga (ischemic heart disease), Vyanabalavaisamya (hypertension), Visamajvara (Malaria), Kala-azar, Slipada (filariasis) Kitibha (psoriasis), Apasmara (epilepsy) etc. were carried out during the reporting period. 272137 patients attended at OPD Level while 1694 patients were admitted in the IPD during these studies. Details of these studies are provided hereunder:

Amavata (rheumatoid arthritis)

The clinical trials on Amavata were conducted at CRI, Bhubneswar, Mumbai; IIK, Patiala; IIP, Cheruthuruthy; RRI Gwalior; RRC, Nagpur, Itanagar and Jammu. A total number of 180 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations
on Amavata [Rheumatoid Arthritis]

S.No. Therapy	Instt./ Center/ Units	Total Cases....	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Pippali Vardhamana, Samira Pannaga Rasa	RRIG	13	-	2	2	6	3
2. Mahayograj Guggulu. Simhanad Guggulu. Vaiswanara Curna	CRIB	22	6	2	3	1	10
	RRIG	19	-	1	5	6	7
	RRCN	25	9	9	-	-	7
	RRCI	5	3	1	-	-	1

S.No. Therapy	Instt./ Center/ Units	Total Cases....	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
3. Mahayograj Guggulu & Simhanad Guggulu	CRIM	4	-	-	2	2	-
4. Mahayograj Guggulu, Vaiswanara Curna	IIKP	42	2	8	12	6	14
5. Asvagandha Curna	RRCI	6	1	-	-	-	5
	RRCJ	16	1	6	5	-	4
6. Asvagandha Kwatha (Internal)	IIPC	25	8	3	10	2	2
7. Pancakarma Therapy	IIPC	3	2	-	-	-	1
Total		180	32	32	39	23	54

Paksavadha (Hemiplegia)

The Clinical trials on Paksavadha were conducted at CRI, Bhubneswar, Mumbai; IIP, Cheruthuruthy; IIK, Patiala and RRC, Nagpur. A total number of 178 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations on Paksavadha [Hemiplegia]

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Ekangavira Rasa	CRIB	7	2	4	-	-	1
2. Samira Pannaga Rasa Pancakarma Therapy	CRIM	3	-	-	-	1	2

S.No. Therapy	Instt./ Center/ Units	Total Cases....	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
3. Ekangavira Rasa with Pancakarma Therapy	CRIM	6	-	-	3	1	2
4. Samir Pannaga Rasa Nirgundi Taila (Abhyanga) Sastikasali Pinda Sweda	IIPC	36	5	3	16	3	9
	RRCN	40	11	10	1	-	18
5. Ekangavira Rasa Masha Taila Sastikasali Pinda Sweda Ex.	IIPC	30	2	3	11	8	6
	RRCN	7	2	3	-	-	2
	CRID	20	3	6	2	3	6
6. Ekangavira Rasa Nirgundi Taila	IIKP	21	1	2	2	9	7
7. Pancakarma Therapy	IIPC	28	2	3	11	7	5
	Total	198	28	34	46	32	58

Kampavata [Parkinson's diseases]

The Clinical trials on Kampavata was conducted at CRI, Mumbai. A total number of 4 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table

Results of Clinical Studies of Ayurvedic Preparations on Kampavata [Parkinson's diseases]

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Kampavatari Rasa with Balarista	CRIM	1	-	1	-	-	-
2. Kampavatari Rasa Kanchabeeja Curna, Balarista	CRIM	3	2	-	-	-	1
	Total	4	2	1	-	-	1

Saisaviyavata [Poliomyelitis]

The Clinical trials on Saisaviyavata was carried out at CRI, New Delhi using Ekgangavir Rasa and Sastikasali Pinda Sveda. A total number of 13 cases were included in this study. The study showed good response in one patient, fair response in 5 patients, poor response in 2 patients, no response in one patient while 4 patients discontinued the study before completion of the treatment.

Gridhrasi [Sciatica]

The Clinical trials on Gridhrasi were conducted at the CRI, Bhubneswar, New Delhi and IIP, Cheruthuruthy. A total number of 85 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical studies of Ayurvedic Preparations
on Gridhrasi (Sciatica)

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Trayodosanga Guggulu.	CRIB	36	16	9	-	9	2
Visatinduka Vati	IIPC	20	1	3	6	6	4
2. Maharasanadi Kwatha,	IIPC	19	3	6	3	6	1
Nirgundi Taila							
3. Trayodosanga Guggulu,	CRID	10	5	3	1	-	1
Visatinduka Vati							
Rasna Kwatha,							
Mahanarayana Taila,							
Nirgundi Kwatha for Swedana							
Total		85	25	21	10	21	8

Pangu (Paraplegia)

The Clinical trials on Pangu was conducted at IIP, Cheruthuruthy. A total number of 18 cases have been studied adopting different therapeutic

approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations
on Pangu [Paraplegia]

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Pancakarma with Murchita taila	IIPC	9	1	1	2	1	4
2. Asvagandha Kwatha Goracnadi vati Bala-Asvagandha Taila Abhyanga	IIPC	9	1	-	3	1	4
Total		18	2	1	5	2	8

Parinama Sula (Duodenal ulcer)

The Clinical trials on Parinamasula were conducted at CRI, Bhubneswar; IIP, Cheruthuruthy; CRU, Kottakkal and CRU, Hyderabad. A total number of 112 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations
on Parinamasula (Doudenal ulcer)

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Mahatiktaka Ghrita	IIPC	1	1	-	-	-	-
2. Indukanta Ghrita (Sodhana & Sansaman)	CRUK	3	2	-	1	-	-

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
3. Nimbidin capsules	CRUK	2	-	-	2	-	-
4. Mahatikta Ghrita (Sodhana & Sansaman)	CRUK	20	12	6	2	-	-
Indukanta Grita (Sodhana & Sansaman)	CRUK	30	20	8	2	-	-
5. Indukanta Ghrita Snehana	CRUH	13	-	12	-	-	1
6. Mahatikta Ghrita Snehana	CRUH	13	-	11	-	-	2
7. Bilva Patra Kwatha (Amasaya Praksalan)	CRUH	20	-	20	-	-	-
Nimbtiktam	CRIB	2	1	1	-	-	-
Amalki	CRIB	8	4	1	-	-	3
Rasayana							
Total		112	40	59	7	-	6

Anndrava sula [Gastric ulcer]

The Clinical trials on Annadravasula were conducted at RRC, Itanagar and CRU, Hyderabad. A total number of 37 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table

Results of Clinical Studies of Ayurvedic Preparations on Annadrava Sula (Gastric ulcer)

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Praval Pisti	RRCI	17	4	2	-	-	11
Jahara Mohara Pisti	CRUH	10	-	9	-	-	1
Mukta Pisti							

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
2. Eladiurna + Amalki urna	CRUH	10	-	10	-	-	-
Total		37	4	21	-	-	12

Kamala [Jaundice]

The Clinical trials on Kamala was conducted at RRC, Hyderabad. A total number of 52 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations
on Kamala [Jaundice]

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Bhumyamalki, Katuki, Kakmachi Kwatha	RRCH	24	3	2	1	-	18
2. Dhatri Lauha, AYUSH-55, Sajjiksara	RRCH	28	4	1	4	-	19
Total		52	7	3	5	-	37

Arsa [Piles]

The Clinical trials on Arsa were conducted at CRI, New Delhi and Mumbai. A total number of 27 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
**Results of Clinical Studies of Ayurvedic Preparations
on Raktarsa (Haemorrhoids)**

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Apamarga Ksara, Ausadha, Taila Basti	CRID	210	190	12	3	-	5
2. Taila Basti	CRIM	7	-	3	2	-	2
Total		217	190	15	5	-	7

Bhagandara (fistula-in-ano)

The Clinical trails on Bhagandara were conducted at CRI, New Delhi and Mumbai. A total number of 48 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
**Results of Clinical Studies of Ayurvedic Preparations
on Bhagandara (Fistula-in-ano)**

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Kasara Sutra	CRID	43	37	1	-	-	5
	CRIM	5	5	-	-	-	-
Total		48	42	1	-	-	5

Tamaka Svasa (Bronchial asthma)

The Clinical trials on Tamaka Svasa were conducted at CRI, Mumbai; IIK, Patiala, RRI, Gwalior, Junagarh, Patna and RRC, Jammu. A total number of 139 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
**Results of Clinical Studies of Ayurvedic Preparations
on Tamaka Swasa [Bronchial Asthma]**

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Pippali Vardhman with Samira Pannaga Rasa	RRIG	19	-	2	10	1	6
	RRIJU	3	-	2	-	1	-
2. Sirisa Tvak Kwatha	IIKP	19	4	7	6	-	2
	RRIJU	18	1	9	5	3	-
	RRIG	20	-	2	6	6	6
	RRCJ	12	-	10	-	-	2
3. Pippali Vardhaman	CRIM	3	1	-	1	1	-
	RRCJ	5	-	5	-	-	-
4. Haridrakhanda Talisadi urna Arjunarista	PRIP	35	3	12	8	7	5
5. Somalata urna Talisadi urna	RRIP	4	-	-	1	2	1
6. Annatparni Ghanvati	IIKP	1	-	-	1	-	-
Total		139	9	49	38	21	22

Pratisyaya (Upper respiratory infection)

A Clinical study on Pratisyaya using Godanti Mishrana was carried out at CRI, Bhubneswar. Out of 58 patients included into the study 18 showed good response, fair response in 13 and poor response in 2 patients.

Sveta Pradara (Leucorrhoea)

The Clinical study on Sveta Pradara using Kukutandtvak Bhasma and Punarnava Mandoor vati was carried out in 81 patients at CRI, Mumbai. The study showed good response in 40 patients, fair response in 27 patients and poor response in 14 patients.

Kuposana (Mal-nutrition)

The Clinical trials on Kuposana were conducted at RRC, Mandi, Bangalore and Nagpur. A total number of 77 cases have been studied

adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
**Results of Clinical Studies of Ayurvedic Preparations
on Kuposana (Mal-nutrition)**

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Ashashva (Amalki, Satavari Asvagandha)	RRCM	34	-	8	12	1	13
	RRCN	19	5	-	-	-	14
	RRCB	10	9	-	-	-	1
2. Asvagandha curna	RRCB	10	9	-	-	-	1
	RRCN	4	1	1	-	-	2
	Total	77	24	9	12	1	31

Madhumeha (Diabetes Mellitus)

The Clinical trials on Madhumeha were conducted at CRI, Bhubneswar, New Delhi, Mumbai; IIK Patiala; RRC, Jammu and ALRCA, Chennai. A total number of 187 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
**Results of Clinical Studies of Ayurvedic Preparations
on Madhumeha (Diabetes Mellitus)**

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. AYUSH-82	CRID	53	4	13	-	21	15
	IIKP	11	3	3	2	-	3
	ALARCAC	10	1	2	3	2	2

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
2. Chandra Prabhavati Trivang Bhasma	CRIM	20	1	1	3	3	12
	IIKP	12	5	2	1	-	14
	RRCJ	13	10	2	1	-	-
3. Methika curna Nisamalki	IIKP	12	2	4	3	-	3
	CRIB	56	31	21	4	-	-
Total		187	57	48	17	26	39

Medoroga (Lipid disorder)

The Clinical trials on Medoroga were conducted at CRI, New Delhi, Mumbai and ALRCA, Chennai. A total number of 31 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations
on Medoroga (Lipid Disorder)

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Vyosadi Guggulu	CRIM	9	1	1	1	1	5
	ALRCAC	3	-	1	-	-	2
	CRID	19	-	1	12	4	2
Total		31	1	3	13	5	9

Mutrasmari (Urolithiasis)

The Clinical study on Mutrasmari was conducted in 31 patients at CRI, New Delhi using Palasha Ksara. The study showed good response and fair response in 9 patients each, poor response in 4 patients and no response in 6 patients. The remaining 3 patients discontinued the study before completion of the treatment.

Vyanbala Vaisamya (Hypertension)

The Clinical trials on Vyanbala Vaisamya were conducted at CRI, New Delhi, Mumbai; IIP, Cheruthuruthy; RRC, Jammu; RRI, Calcutta; RRC, Mandi and Itangar. A total number of 173 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations
on Vyanbala Vaisamya (Hypertension)

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Tagaradi curna,	CRIM	5	2	-	-	-	3
Jatamansi curna,	IIPC	15	6	-	5	3	1
Arjuna Tvak	RRCI	7	-	2	1	1	3
Kwatha	RRCM	31	2	11	5	4	9
	RRCJ	8	8	-	-	-	-
2. Usiradi curna,	CRID	23	3	8	6	3	3
	CRIM	3	1	-	-	-	2
Jatamansi curna,	RRCI	27	5	7	4	6	5
	RRIC	20	5	3	1	1	10
Arjuna Tvak	RRCM	19	1	7	5	1	5
Kwatha	IIPC	15	7	2	1	1	4
	Total	173	40	40	28	20	45

Visamajvara

The Clinical trials on Visamajvara were conducted at CRI, Bhubneswar; RRI, Jaipur and RRC, Hyderabad. A total number of 114 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
**Results of Clinical Studies of Ayurvedic Preparations
on Visamjvara**

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. AYUSH-64	CRIB	14	4	-	2	1	7
	RRIJ	55	33	15	6	1	-
	RRCH	28	3	2	2	-	21
2. Parijata Ghanvati	RRCH	17	3	2	2	1	9
Total		114	43	19	12	3	37

Slipada (Filariasis)

The Clinical trials on Slipada were conducted at the CRI, Bhubneswar; RRC, Vijayawada and RRC, Nagpur. A total number of 97 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results.

Table
**Results of Clinical Studies of Ayurvedic Preparations
on Slipada (Filariasis)**

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Sudarsana Ghanavati, Arogyavardhini vati	CRIBh	34	5	12	-	-	17
	RRCV	44	10	8	13	-	13
	RRCN	1	-	-	-	1	-
2. AYUSH-64	RRCV	2	1	1	-	-	-
3. Saptaparna Ghanvati	RRCV	2	-	1	1	-	-
4. AYUSH-64, Arogyavardhini, Punarnavarista	CRIBh	14	2	3	-	-	9
Total		97	18	25	14	1	39

Kala-azar

Two patients of Kala-azar were treated at RRI, Patna using Praval Muktdiyoga, Loknatha Rasa and Jvarasani Rasa. The study showed good response in both of the patients.

Kitibha (Psoriasis)

The Clinical trials on Kitibha were conducted at CRI, New Delhi; RRI, Junagarh and Trivandrum. A total number of 64 cases have been studied adopting different therapeutic approaches. The following table summarises the details related to the line of approach and the number of cases studied together with the results:

Table
Results of Clinical Studies of Ayurvedic Preparations
on Kitibha (Psoriasis)

S.No. Therapy	Instt./ Center/ Units	Total Cases	Results				
			Good resp.	Fair resp.	Poor resp.	No resp.	Drop out
1. Nimba ghan satwa with water. Lajjalu keram	CRID	4	1	3	-	-	-
2. -do-	RRIJu	7	1	2	2	1	1
3. Kaishor Guggulu Vishvamitra Kapal Taila	RRIJu Tail	4	-	-	1	1	2
4. Kaisora Guggulu, Viswamitra Kapal Taila	RRIT	10	2	4	2	2	-
5. Nimbathikta Cap. Lajjalu keram	RRIT	22	7	5	3	2	5
6. Arogyavardhani Chakramarda	RRIT	17	5	3	5	1	3
	Total	64	16	17	13	7	11

Switra (Vitiligo)

The Clinical trials on Switra was conducted at RRC, Jammu. 6 cases have been studied with AYUSH-57. All the 6 cases discontinued the study before completing the treatment.

Dristi Dosa (Myopia)

The Clinical study on Dristi Dosa using Saptamrita Lauh, Triphala Kwatha and Netra Bindu was carried out in 146 patients at CRI, New Delhi. The study showed good response in 12, fair response in 21, poor response in 40 and no response in 30 patients while 35 patients discontinued the study before completion of the treatment.

Shirah Sula

Two patients were included in the clinical study on Shirah Sula at ALRCA, Chennai using Varunadi Kshira Paka (Nasya). The study showed good response in both of the patients.

Medhya Rasayana

A clinical study on Medhya Rasayana was carried out on 12 volunteers using Brahmi at ALCRA, Chennai. Out of 12 volunteers included in this study good response was seen in 6, fair response and poor response in one each while remaining 4 volunteers discontinued the study.

Mutra Roga

The effect of Punarnava and Trinapanmool as a diuretic agent have been investigated at CRU (MT), Varanasi besides the study of these drugs on nephrotic syndrome. Patient is still in progress. A long term trial of these drugs in different kinds of renal disorders is continued.

Neurological disorders

The effect of Dasmoola in various neurological disorders have been investigated at CRU (MT), Varanasi. The study showed significant improvement in nerve conduction velocity in the pattern of H. reflexes under the influence of this drug. The effect of Jyotismati on memory impairment and anxiety neurosis have also been initiated. The study showed significant influence of this drug in the improvement of memory as well as the relief in anxiety neurosis. A long term trial of Jyotismati and Dasmoola is in progress.

Myocardial Ischemia

The effect of Arjuna have been evaluated towards its relation with the proper functioning of heart at CRU (MT), Varanasi. The study showed that the drug is helpful in reducing anginal pain as well as in the myocardial ischemia. A long term trial of this drug is in progress.

Apasmara (Epilepsy)

A clinical study on Apasmara was carried out at CRI, New Delhi in two groups using AYUSH-56 in one group and Vacadiyoga in another groups. 7 patients were included in first group and 30 patients in the second group. The study is in progress.

B. Disease Groups, number of Patients and Participating Projects under Clinical Research Programmes during 1997-98.

S.No.	Disease Groupwise	Patients Nos.	Participating Projects
1.	Vatavyadhi		
	(I) Amavata	180	CRI B, CRIM, IIKP, IIPC, RRIIG, RRCN, RRCI, RRCJ.
	(II) Paksavadha	198	CRIB, CRIM, IIPC, IIKP, RRCN, CRID.
	(III) Saisaviya vata	13	CRID.
	(IV) Gridhrasi	85	CRIB, CRID, IIPC.
	(V) Pangu	18	CRIB, CRID, IIPC.
	(VI) Kampavata	04	CRIM.
2.	Anna-Vaha Srotas Vyadhi.		
	(I) Parinamsula	112	CRIB, IIPC, CRUK, CRUH.
	(II) Annadravasula	37	RRCI, CRUH.
	(III) Arsa	217	CRID, CRIM.
	(IV) Bhagandara	48	CRID, CRIM.
	(V) Kamala	52	CRUH.
3.	Tamak swasa	139	IIKP, CRIM, RRIIG, RRIJU, RRIP, RRCJ.
4.	Mutraroga		
	(I) Madhumeha	187	CRIBh, CRID, CRIM, IIKP, RRCJ, ALRCAC.
	(II) Mutrasmari	31	CRID.
5.	Medo roga	31	CRID, CRIM, ALRCAC.
6.	Hrid Roga		
	Vyanbalavaisamya	173	CRID, CRIM, IIPC, RRCJ, RRIC, RRCM, RRCI.
7.	Visamajwara	114	CRIB, RRIJ, RRCH.
8.	Slipada	97	CRIB, RRCV, RRCN.
9.	Tvakroga		
	Kitibha	64	CRID, RRIJU, RRIT
	Switra	06	RRCJ.
10.	Manasa Roga	37	CRID
11.	Medhya Rasayan	12	AURAC.
12.	Other disease		
	Kuposana	77	RRCM, RRCB, RRCN.
	Swetapradara	81	CRIM.
	Sirahsula	02	ALRCAC.
	Pratisyaya	38	CRIB
	Kala-azar	02	RRIP.
	Dristi Dosa	146	CRID.
	Neurological disorders	-	CRU(MT)V.
	Myocardial Ischemia	-	CRU(MT)V.

Statement showing number of patients attended at O.P.D. & admitted in I.P.D. during 1997-98.

Sl. No.	Institute/ Centre	O.P.D. Patient			I.P.D. Patient		
		New	Old	Total	Admitted	Discharged	%age of bed occupancy
1.	CRI, Delhi	12958	14210	27168	229	232	38.3
2.	CRI, BBSR	9737	7355	17092	186	202	27.0
3.	CRI, Mumbai	1701	5503	7204	85	81	20.3
4.	IIC, Patiala	5884	6146	12030	229	232	33.29
5.	IIP, Chy.	8207	26095	34302	328	337	77.84
6.	RRi, Lucknow	6586	8136	14722	42	43	8.59
7.	RRI, Calcutta	5607	12496	18103	-	-	-
8.	RRI, Junagarh	3224	4183	7407	17	16	5.65
9.	RRI, Patna	6619	9652	16271	-	-	-
10.	RRI, Gwalior	2660	2783	5443	20	21	19.49
11.	RRI, Tvm.	3534	12775	16309	70	69	Not reported
12.	RRI, Jaipur	2334	811	3145	81	84	33.20
13.	RRC, Nagpur	2353	6434	8787	78	77	20.00
14.	RRC, Bangalore	1925	5630	7555	-	-	-
15.	RRC, jammu	5920	8890	14810	-	-	-
16.	RRC, Mandi	7808	5422	13230	29	29	8.16
17.	RRC, Hastinapur	6130	7545	13675	36	36	-
18.	RRC, Gantok	3880	3763	7643	-	-	-
19.	RRC, Vijayawada	3328	4030	7358	68	65	40.94
20.	RRC, Itanagar	4928	2673	7603	25	-	-
21.	ALRCA, Chennai	273	419	692	-	-	-
22.	ARU, Bangalore	621	719	1340	22	23	35.82
23.	CRU, Kottakal	-	-	-	89	90	41.16
24.	CRU, Hyderabad	2163	-	2163	60	66	-
25.	CRU (MT), Varanasi	-	-	3520	-	-	-
26.	Ayurvedic Research Unit, Safdarjung Hospital	2659	1908	4567	-	-	-
Total		111179	157578	272137	1694	1728	-

HEALTH CARE RESEARCH PROGRAMME

There are three types of field oriented Clinical Research Programme being run by the Council viz. Survey and Surveillance Programme and Community Health Care Research Programme mostly attached with CRIs, RRI's, and RRCs under one broad section termed 'Mobile Clinical Research' and independent "Tribal Health Care Research Programmes' located in Tribal population dominated areas of the country, These units are equipped with a mobile van or jeep, a physician and ancillary staff who periodically visit villages/tribal areas to conduct research studies. These units provide medical aid at their doorstep and at the same time take up study of their health statistics, the incidence of diseases and local health care practices which have been safe guarding their health for centuries traditionally. The units also impart knowledge about health and hygiene in the vilages where they work. Attempts are made to collect folk medical practices and locate valuable manuscripts etc. if it comes to the knowledge of scientific workers while interacting with the village community.

A- Service Oriented Survey & Surveillance Research Programme:

The data regarding socio-economic status, incidence of diseases and their relationship with various etiological factors are compiled in randomly selected villages. The folk medical practices are also noted. During the period under report 19 villages with a population of 33435 were surveyed and 9662 patients were also treated with Ayurvedic drugs.

B- Community Health Care Research Programme:

Each of the Institute/Centre has been assigned a few villages in their vicinity under this programme. The knowledge about health care, prevention of diseases, health promotive measures and use of local herbs for treatment of common ailments is imparted to the people of selected villages. The details of socio-economic status, environmental factors in fluencing the disease proneness are recorded. This programme has been executed in 16 villages with a population of 24751 and 5692 patients have also been provided incidental medical aid.

C- Tribal health Care Research Programme:

This programme has been initiated with the aim to study living conditions of tribal people, folk medicines used by them, occurrence of medicinal plants of the area, propagation of knowledge about oral hygiene, prevention of diseases, use of common medicinal plants of the area and to extend medical aid at their door steps. This programme has been continued further by the Tribal Health Care Research Projects functioning at Car Nicobar (Andaman Nicobar Islands), Jamune (Dis. Palamau, Bihar), Jagdalpur (Madhya Pradesh), Jhabua (Madhya Pradesh), Imphal (Manipur) and Ziro (Arunachal Pradesh). 6 villages consisting of a population of 5501 individuals have been covered and incidental medical aid extended to 5210 patients during the reporting period. One of the units located at Chinchpada - Dhule (Maharashtra) was closed during restructuring of the Council. Likewise at Ziro (Arunachal Pradesh) the unit has remained non functional as no Officer joined. Attempts are being made to make it functional from RRC- Itanagar. THCRP-Imphal could not visit field stations due to prevalent local insurgency.

A 44
A 0-1
H 100
A
P

SERVICE ORIENTED SURVEY & SURVEILLANCE SCREENING RESEARCH PROGRAMME

S.No. Institute/Units	Name of the villages	Population covered treated (Approx.)	No. of patients	Common Diseases
1. CRIA Delhi	Jahangirpur	-	1086	Kasa, Jwara, Daurbalyata, Sandhi Sula, Vatik sula, Twak Roga, Pravahika, Atisara
2. CRIA Patiala	Kasiana	1061	264	Twak roga, Shirahshul, Krimi, Cough, Jwara
4. IIP Cheruthuruthy	Nelluvaya Thekkumkara	923 211	388 181	Vatavikar, Sandhisula, Katisula, Sirah Shool., Daurbalyata, Atisara, Sandhisula. Kasa, Pratisyaya, Pradara
5. RRI Calcutta	Khasmahal	No. details available		
6. RRI Patna	Bhiropur	182	152	Kasa, Jwara, Pratisyaya, Netra roga, Pandu
7. RRI Lucknow	Beheta	6000	1697	Jwara, Kasa, Atisara, Udar vikara, Pratisyaya, Swasa, Sirahsula
8. RRI Gwalior	Prijouli	1388	703	Twak Roga, Vatavyadhi, Jwara, Kasa, Pratisyaya, Sandhisula, Udaravikara
9. RRI Junagarh	Choraval	871	76	Amavata, Twakroga, (Health Check up - 209)
10. RRC Guwahati	Dolibari	6500	1269	Jwara, Atisara, Amlapitta, Krimi, Pradara. Agnimandya, Twak roga, Vatavyadhi.
11. RRC Jammu	Migrant camp Musthi Phase I Ismailpur	1312 819	270 309	Amlapitta, Pravahika, Pratisyaya, Sandhisula, Udar Vikar
12. RRC Vijayawada	Kottur	1226	586	Kasa, Jwara, Amlapitta, Katisula, Kosthabaddhata. Atisara, Gridhrasi

S.No. Institute/Units	Name of the villages	Population covered treated (Approx.)	No. of patients	Common Diseases
13. RRC Bangalore	Mallenalla-Sandra	1460	1114	Twak Roga, Vatavyadhi, Vrana, Pradara, Pandu, Mukharoga, Kama roga, Kasa
14. RRC Nagpur	Khandala Pippaldhara	1872 716	148 47	Swasa, Pandu, Kasa, Krimi, Udar Sula, Vatavyadhi.
15. MCRU Jamnagar	Juna Nagna Nava Nagna	3894	72	Jwara, Vatavayadhi, Kasa, Katisula, Udar sula, Pratisyaya, Swasa, Krimi.
16. MCRU Varanasi	Patnawa Akauni	5000	1300	Primary Health Care Programme, Pravahika, Atisar, Stri roga, Krimi, Sandhisula, Kasa, Yakrit sotha.
	19	33435	9662	

Community Health Care Research Programme

S.No.	Institute/Units	Name of the villages	Population covered treated (Approx.)	No. of patients	Common Diseases
1.	IIP Cheruthuruthy	Mundathicoda Kurumathra	--	332 306	Vataja roga, Twak roga, Kasa, Peenus, Udar sula, Swasa
2.	CRIA Mumbai	Vile Parle,	834	739	Asthma, Madhumeha, Skin diseases, Kasa, Balaroga, Sandhisula, Pratisyaya.
3.	RRI Calcutta	Hatgacha	No details available		
4.	RRC Patna	Pakauli	958	26	Kasa, Pradara, Krimi, Mukha roga, Netra-roga, Pratisyaya, Twak roga
5.	RRI Lucknow	Mirzapur	3000	-	Jwara, Kasa, Atisara, Udaravikar, Pratisyaya, Swasa, Kasa
6.	RRI Gwalior	Soni Ganeshpura	1288 1337	398 110	Pratisyaya, Udara vikara, Jwara, Kasa, Sandhi sula
7.	RRI Junagadh	Patala Gudar	800	50	Amavata, Twak roga, Atisara, Sitapitta
8.	RRC Itanagar	Poma	1000	1030	Kasa, Jwara, Twak roga, Udar sula, Atisara, Vata vyadhi, Pratisyaya, Vrana.
9.	RRC Guwahati	Radhala	1000	265	Jwara, Pratisyaya, Udar sula, Pradara, Agnimandya, Atisara, Amlapitta

S.No. Institute/Units	Name of the villages	Population covered treated (Approx.)	No. of patients	Common Diseases
10. RRC Jammu	Chak Jaffar	841	444	Pratisyaya, Kasa, Jwara, Atisara, Swasa, Kati sula
11. RRC Vijaywada	Thiryadinai- navavam	1802	326	Udar sula, Daurbalyata. Rakta vikara, Rajodosa, Jwara, Kasa Sandhivata.
12. RRC Bangalore	Naganayaka- nahalli	1500	1221	Vrana, Vatavyadhi, Twak Roga, Udar Sula, Kasa, Krimi, Pandu.
13. RRC Nagpur	Mohagaon Lakhanpur	1217 486	102 27	Visam Jwara, Sandhi Vata, Swasa, Pratisyaya, Kasa, Krimi, Vata vyadhi
14. ALRCA Madras	Thorapakkam Therapakkam colony, Pettai, Seeveram, Muttakaram-Chavadi, Mettukuppam	8688	316	
	24	24751	5692	

Tribal Health Care Research Programme

S.No. Institute/Units	Name of the villages	Population covered treated (Approx.)	No. of patients	Common Diseases
1. Jhabua	H.Qs	-	97	Jwara, Pravahika, Amlapitta, Visamjwara
2. Car-Nicobar	H.Qs.	2501	1989	Twak Roga, Rakta chapa, Swasa, Krimi, Kasa, Jwara
3. Imphal	H.Qs	-	1906	Pravahika, Sandhivata, Twak roga, Kasa, Vibandha, Parinamsula
4. Jagdalpur	Kamakoni Kachora Agahanpur	3000	1218	Pratisyaya, Sandhi vata, Kandru, Atisara, Hrdroga, Udarsula, Vrana, Jwara, Katisula
Total	6	5501	5210	

MEDICO-ETHNO BOTANICAL SURVEY PROGRAMMES

Medico-ethnobotanical survey is an important component of drug research. Infact it provides basic information/data and authentic raw drug materials for initiating research studies i.e. clinical/phyto-chemical/ pharmacological/pharmacognostical/drug standardisation etc. Survey units functioning at the Regional Centres and Institutes have collected useful basic information covering various important phytogeo-graphic regions/ states/ districts including inaccessible rural and tribal areas. These data have been published in the medico-botanical monographs from time to time.

During the reporting period 1997-98, the Department of ISM&H, Ministry of Health & Family Welfare (Government of India) have allocated an important task of collection and supply of genuine raw drugs to the various survey units of the Council as a part of priority programme of the "Central Scheme for evolving Pharmacopoeial Standards of ISM Drugs" (abbreviated "Central Scheme"). The Various Survey Units of the Council are required to supply the selected raw drugs of Ayurveda, Siddha to 25 Institutions all over the country, identified for the purpose. inspite of many constraints eleven survey units located at Bangalore, Calcutta, Guwahati, Gwalior, Jaipur, Jhansi, Junagarh, Nagpur, Tarikhet, Trivandrum and Vijayawada have all together supplied over 592 samples distributed in 118 species of plants to the identified 25 institutions and PLIM, Ghaziabad. Following is the work done at a glance during the year 1997-98 by the Survey Units of the Council:

A. Raw Drug Supply : *Central Scheme*

No. of Survey Units	No. of Plant Species collected/ supplied	Raw Drug Samples				No. of Institutions
		Col-lected	Sup-plied	Reference samples PLIM	weight supplied	
11	118 + Mkt. samples	305 +Mkt. samples	283 +Mkt. samples	283 1 quintal	More than 1 quintal	25

B. Important work carried out:

No. of Survey Tours Conducted	Specimens Collected	Raw Collected	Drugs Supplied	Herbarium Identified	Specimens /Accessioned
Over 104 (including local surveys)	225 +Mkt samples	294+ Mkt. samples	221+ Mkt. samples	872	1314
Paper Published/ Communicated	Medico-Botanical Monograph	Participation in Seminar/ Workshops			
21	1-published 6-under process	2-International Several at National level			

Following is the brief resume of the work done by various Survey Units of the Council:

1. REGIONAL RESEARCH CENTRE (AY.), BANGALORE - KARNATAKA (RRCB)

The Survey Unit functioning under RRC at Bangalore has conducted local survey tours for collection of raw drugs under Central Scheme for evolving pharmacopoeial standards under the Department of ISM&H, Ministry of Health & Family Welfare, Government of India (Central Scheme). 20 raw drugs have been collected and 12 drugs including 3 market samples have been supplied to the Institutions allotted for the purpose. 8 drugs are under process of drying. During the period under report 245 specimens have been identified and 125 specimens accessioned. The Research Officer (Bot.) of the Centre has been deputed to accompany a survey party for conducting survey for selection of sites for Biodiversity conservation under WWF Project from 9.7.97 to 4.8.97. 10 priority sites were selected. He was also invited to visit National Institute of Medical Sciences, Tokyo (Japan) where he delivered lectures on the importance of medicinal plants of Ayurveda, anti-allergic plants and highlighted the work carried out by the Council.

2. REGIONAL RESEARCH INSTITUTE (AY.), CALCUTTA - WEST BENGAL (RRIIC)

The Survey Unit located at RRI, Calcutta had undertaken sixteen survey tours for collection of raw drugs for "Central Scheme". 45 raw drugs were collected out of which 36 were supplied to the respective institutions and 14

reference samples have been supplied to PLIM, Ghaziabad. Remaining 9 drugs are under process. The unit also provided regional names of the medicinal plants as per proforma to the Department of ISM&H, besides routine work of Herbarium and Museum.

3. REGIONAL RESEARCH INSTITUTE (AY.), GWALIOR - MADHYA PRADESH (RRIG)

The Survey Unit functioning at RRI Gwalior has undertaken nine tours in the surrounding areas for collection of raw drugs. 45 raw drugs have been collected for supply to various research organisations. 21 raw drugs were supplied to allocated Institutions under "Central Scheme", besides supply of 24 raw drugs to other research organisations. During the period under report 205 specimens were accessioned in the herbarium and one research paper published.

5. REGIONAL RESEARCH CENTRE (AY.), ITANAGAR - ARUNACHAL PRADESH (RRCI)

The Survey Unit functioning under the RRC at New Itanagar has undertaken an extensive survey tour in the Ying Kiong Forest Division of Upper Siang district for a period of 11 days and a few local survey tours. A collection of 204 specimens comprising of 196 species which includes 50 species of Ayurvedic importance have been collected. During the reporting period 50 specimens have been identified, 177 specimens mounted, 30 specimens accessioned and 2 samples added to the Museum, besides supply of 6 Kg. of raw drugs to IPD/OPD of Centre and other organisations. Two research papers published and one communicated for publication.

6. REGIONAL RESEARCH INSTITUTE (AY.), JAIPUR - RAJASTHAN (RRIJ)

The Survey Unit functioning under RRI, Jaipur has undertaken 5 survey tours in surrounding areas of Jaipur for collection of raw drugs under "Central Scheme". During the tours out of 23 drugs collected, a collection of 15 raw drugs have been made for "Central Scheme" while eight drugs for other units/PLIM, Ghaziabad. Supply of 10 raw drugs under "Central Scheme" and 11 other organisations have been made and the rest are under process of drying. Reference samples of raw drugs under "Central Scheme" have been sent to the PLIM, Ghaziabad. During the reporting period 7 specimens have been collected, 567 specimens identified, 565 accessioned and Kalmegh (*Andrographis paniculata*) a plant of different habitat introduced successfully in the experimental garden. One exhibition on medicinal plants

was arranged. Research Officer (Bot.) was deputed to attend a National seminar on *Madhumeha* at Chennai and a national workshop on mangrooves of India at NIO (CSIR), Goa under WWF etc. sponsored conservation of biodiversity programme. Three monographs on Medico-botany have been scrutinised for publication. Five research papers have been sent for publication (one already accepted).

**7. REGIONAL RESEARCH CENTRE (AY.), JHANSI - UTTAR PRADESH
(RRCJH)**

The Survey Unit at RRC, Jhansi has collected 106 samples of raw drugs from the garden and local areas and supplied 66 samples to various organisations which includes 56 samples of raw drugs supplied under "Central Scheme". Besides this during the reporting period 21 species of raw drugs (\pm 181.5 Kg.) have been collected for supply.

**8. REGIONAL RESEARCH INSTITUTE (AY.), JUNAGARH - GUJARAT
(RRIJU)**

Survey Unit located at RRI, Junagarh has conducted 50 local survey tours in the surrounding areas for collection of raw drugs under "Central Scheme". In all 44 samples of raw drugs have been collected and supplied to over 18 organisations besides 32 reference samples to PLIM, Ghazibad. 20 herbarium sheets of reference samples have also been sent to three organisations. During the period 44 specimens have been collected, 82 specimens accessioned, 52 specimens identified and 24 samples added to the museum. One monograph "A report on the Medicinal Plants of Kutch" have been published.

**9. REGIONAL RESEARCH CENTRE (AY.), MANDI - HIMACHAL
PRADESH (RRCM)**

The Survey Unit located at RRC, Mandi made collection of 3 Kg. raw drugs, identified and accessioned 80 specimens in the herbarium and added 3 specimens in the museum of the Centre besides publication of one paper. One officer was deputed to JNAMPG&H Pune for compilation of scientific data for one month.

10. REGIONAL RESEARCH CENTRE (AY.), JAMMU - J&K (RRCJ)

The Survey Unit located at RRC, Jammu has collected 27 drugs for supply out of which eight drugs (\pm 45.5 kg.) were supplied to the O.P.D. of the Centre. Fourteen samples were added to the Museum of the Research Centre.

**11. REGIONAL RESEARCH CENTRE (AY.), NAGPUR -
MAHARASHTRA (RRCN)**

The Survey Unit located at RRC, Nagpur conducted four survey tours for collection of raw drugs in the surrounding forest areas. 37 raw drugs were collected which includes 13 market samples for "Central Scheme". 24 raw drugs have been supplied to various other units. One monograph is under process while two research papers have been communicated for publication.

**12. INDIAN INSTITUTE OF AYURVEDA FOR DRUG RESEARCH,
TARIKHET - UTTAR PRADESH (IIADRT)**

The Survey Unit under IIADR, Tarikhet has undertaken tours and collected/supplied 40 raw drugs (\pm 350 Kg. fresh) to different allocated organisations under "Central Scheme". The Institute has sent exhibits for the 'Mystique India' exhibition at New Delhi. One paper was published and four communicated during the period.

**13. REGIONAL RESEARCH INSTITUTE (DR), TRIVANDRUM - KERALA
(RRIT)**

The Survey Unit functioning at RRI, Trivandrum has undertaken local tours for collection of raw drugs under "Central Scheme". 32 drugs were collected and supplied to various units allocated besides identification of 94 specimens, accessioning of 98 specimens and 30 samples added to the museum. 86 samples of drug were collected/purchased for the Chemistry and Pharmacy Section.

**14. REGIONAL RESEARCH CENTRE (AY.), VIJAYWADA - ANDHRA
PRADESH (RRCV)**

The Survey Unit functioning at RRC, Vijayawada conducted 5 tours (two long duration and three local) and collected 56 raw drugs for supply to various organisations. 34 raw drugs have been supplied to various research organisations under "Central Scheme" while 22 raw drugs have been supplied to other organisations. During the period 100 specimens have been accessioned and three research papers have been published. Research Officer (Bot.) attended an "Asian Workshop on Conservation of Medicinal Plants" sponsored by Int. Dev. Res. Centre and WWF. India.

**15. CENTRAL HERBARIUM AND MUSEUM OF MEDICINAL PLANTS
AT NEW DELHI:**

The Survey Units of the Council located in 16 states of the country are maintaining their collection in their own respective Headquarter level

herbaria. The Governing Body of the Council has approved the establishment of a Central Herbarium & Museum at New Delhi which may have representative specimens and raw drug samples from all the states of the country. A nucleus in the form of Central Herbarium and Museum was initiated at the new building of Council in Janakpuri at New Delhi. During the reporting year, collection of specimens from different survey units were received for the Central Herbarium which have been maintained.

The Museum section arranged exhibition in the capital and participated in the "Mystique India-1997" exhibition held at Pragati Maidan, New Delhi.

CULTIVATION OF MEDICINAL PLANTS

The Council has taken up cultivation of important medicinal plants of Ayurveda and Siddha at the 5 herbal gardens located at Pune (Maharashtra); Mangliawas near Ajmer (Rajasthan); Jhansi and Tarikhet in Uttar Pradesh and Itanagar (Arunachal Pradesh) on semi large scale/small scale experimental cultivation. The species under cultivation in these gardens comprise of arid/semiarid/tropical/sub-tropical and temperate regions. Some exotics have also been grown. The medicinal plants being cultivated under this programme are primarily with an objective to study their adaptability, growth, pathogenesis, flowering, fruiting and to assess the yield at different regions in bio-edaphic conditions. Efforts are also being made with the help of experimental studies to provide basic data/suitable agro-techniques for the successful cultivation and growth of rare and endangered species of medicinal plants.

At the Guggulu Herbal Farm, Mangliawas Guggulu an endangered species *Commiphora wightii* (Arn.) Bhand., a plant of arid and semi-arid region has been cultivated on large scale for its conservation/domestication and procurement of the oleo-gum-resin. The oleo-gum-resin is a drug of high repute in Ayurveda.

In the herbal garden located at Ranikhet, The Council has successfully domesticated 'Saffron' (Kumkum) and evolved techniques for its propagation.

A brief resume of the work carried out under the cultivation programme at each of the cultivation centre is provided hereunder:-

1. **JAWAHARLAL NEHRU AYURVEDIC MEDICINAL PLANTS GARDEN & HERBARIUM, PUNE - MAHARASHTRA (JNAMPG&H):**

The JNAMPG&H located at Pune has total land of 19 acres out of which 10 acres was developed and being utilized for cultivation and maintenance/demonstrative purposes. During the year 1996-97, 5 acres were developed with the grant received from the Ministry under "Central Scheme" for development and cultivation of medicinal plants. About 3 acres of the land has been developed and brought under cultivation. In the remaining 2 acres plantation of species allotted under Central Scheme have been undertaken.

About 400 species of medicinal, economic and ornamental plants of importance have been maintained out of which 150 taxa are from among the plants included in Ayurvedic Formulary Part-I. Plantation of 130 seedlings comprising of Bilva (*Aegle marmelos* Corr.), Gambhari (*Gmelina arborea* L.), Arjun (*Terminalia arjuna* W. & A.), Guggulu (*Commiphora wightii* (Arn.) Bhand.) was done under the "Central Scheme". Seeds of 5 medicinal plants were sown in plastic bags, earthen pots etc. for raising seedlings. Under the experimental cultivation; effect of 'cowdung manure' on the growth of 'Gambhari', 'Arjun' and 'Bilva' have been taken up. The study indicates encouraging results in case of 'Gambhari'.

A large scale cultivation of some important medicinal plants i.e. 'Kumari' (*Aloe barbadensis* Mill.), 'Ushira' (*Vetiveria zizanioides* (L.) Nash.), Japa (*Hibiscus rosa-sinensis* L.), 'Bilva' (*Aegle marmelos* Corr.), 'Nirgundi' (*Vitex nigundu* L.), 'Amalaki' (*Phyllanthus emblica* L.) have been taken up to meet the requirements of different parts as and when requisitioned.

During the period under report 29.880 kg. dried crude drugs belonging to 9 species of medicinal plants i.e. 'Haritaki' (*Terminalia chebula* Retz.), 'Madana' (*Catunaregum spinosa* (Thunb.) Tirav.), 'Bakuchi' (*Psoralea corylifolia* L.), 'Bibhitaka' (*Terminalia bellerica* Roxb.), 'Bhallataka' (*Semecarpus anacardium*, f.), 'Lata karjana' (*Caesalpinia bonduc* (L.) Roxb.), 'Guduchi' (*Tinospora cordifolia* (Miers.)), 'Nirgundi' (*Vitex nigundu* L.) and 'Apamarg' (*Achyranthes aspera* L.) supplied to the Council's units and PLIM, Ghaziabad. The quantity of 31.550 kg. dry crude drugs collected from the garden are stored for future supplies. 95 kg. of fresh root of *Satawari* and 1 kg., fresh fruit pulp of 'Bilwa' are under process. The garden produce that is the leaves of 'Shindoli' (*Phoenix sylvestres*) were sold and a sum of Rs. 3050/- was earned during the period.

Asst. Director Incharge, attended a meeting on the Expert Committee on cultivation of medicinal plants at the Department of ISM&H, Ministry of Health & Family Welfare, New Delhi, during June, 1997. Guidance and technical know-how in respect of cultivation of medicinal plants was imparted free to a number of individuals and institutions. Planting material was also distributed.

32 samples of live plants and other exhibits were sent for display in the exhibition "MYSTIQUE INDIA" held at New Delhi from 20th to 26th October, 1997.

A large number of visitors comprising of students, scientists, including Joint Secretary and Director, Department of ISM&H, Professor of Botany from Sayajirao University, Baroda and scientists from other institutions

visited the garden and herbarium of the Institute. Some foreign dignitaries from Canada, Germany, Austria, USA, UK and London also visited and appreciated the activities of the Institute.

Steps have been initiated to compile a bibliography on the work published by the scientists of the Council and to create a data base on some important medicinal plants.

Guggulu Herbal Farm, Mangliawas - Rajasthan:

The Guggulu Herbal Farm, Mangliawas is located about 26 kms. from Ajmer under the RRI, Jaipur spread over in an area of ±142 acres. It is mainly devoted for the conservation, cultivation and propagation of an endangered precious medicinal plant 'Guggulu' (*Commiphora wightii* (Arn.) Bhand. The Cultivation practice includes studies in respect of growth, behaviour and other experimental studies on various aspects of tapping gum of Guggulu are being carried out in the plantation area of about 40 acres of land.

About 14820 Guggulu plants are being maintained in the farm besides 73 species of other medicinal plants which includes 'Satawari' (*Asparagus racemosus*), 'Amrita' (*Tinospora cordifolia*), 'Langli' (*Gloriosa superba*), 'Nimba' (*Azadirachta indica*), 'Kumari' (*Aloevera*), 'Kuberaksh' (*Caesalpinia bonduc*), 'Amalaki' (*Embllica officinalis*), etc.

During the reporting period 356 rooted plants, 5376 cuttings and 174 plants of Guggulu prepared through Air layering have been planted, besides this 1573 plants/seedlings/seeds of 'Kumari', 'Sirish', 'Pita karveer', 'Nimba', 'Erand' and 'Satawari' were planted/sown. During the period about 700 Guggulu plants died due to termite infestation.

Experimental studies on stem cuttings for better sprouting growth and extraction of gum in Guggulu and other plants (the adulterants of Guggulu were conducted during the reporting period).

An amount of Rs. 57,250/- was earned through selling of 2300 Guggulu plants (Rs. 46,000/-) and 50 kg. of Gum Guggulu supplied to IMPCL, Mohan (Rs. 11, 250/-).

During the reporting period 650 Guggulu stem cuttings and 14.5 Kg. of various parts of *Chenopodium album*, *Fagonia cretica*, *Sarcostemma brevistigma*, *Balanites roxburghii*, *Caesalpinia bonduc*, 'Pilu' etc. were collected and supplied to various institutes. 17.5 kg. of Guggulu Gum, and fruits of 'Ingudi', seeds of 'Kuberaksh', etc. were collected as farm produce for supply.

A monograph on the "Cultivation of Guggulu" was prepared and is under process for publication.

Medicinal Plant Garden, RRC, Itangar (MPGI):

The Medicinal Plants Garden is located at RRC, New Itangar has an area of 17 acres of land which consists of steep slopes and ditches along the hilly area. About 9 acres of land is presently being utilised for cultivation of medicinal plants. Experimental/small scale cultivation of 175 plants have been undertaken, out of which 98 medicinal plants are from the Ayurvedic Formulary Part-I. 21 medicinal plants of Alpine, Sub-Alpine and arid zone areas have been introduced.

14 drug samples of different medicinal plants have been collected/supplied to the OPD/IPD of various Centres/Units at the Council. Experimental studies using different fertilizers/plant hormones and for production of quality seeds through selection and hybridisation have been taken up. Pests and pathogens affecting medicinal plants have been identified.

Regional Research Centre (Ay.), Jhansi (RRCJh):

Cultivation of medicinal plants on experimental/semi large scale cultivation as well as for demonstration purposes of 200 species have been done at Regional Research Centre (Ay.), Jhansi in about 15 acres of land for the purpose out of the total 46 acres of land. 9 species of medicinal plants which includes 'Guggulu' (*Commiphora wightii*), another species of 'Guggulu' (*Commiphora agallocha*), 'Sarpagandha' (*Rauwolfia serpentina/R. canescens*) etc. have been planted. Experimental cultivation of plants like 'Atibala' (*Abutilon indicum*), 'Kalmegh' (*Andrographis paniculata*), etc. have been done. Medicinal plants for demonstration in 100 beds and also potted plants in the green house have been maintained. In the green house 500 potted plants comprising of 150 species have been maintained for demonstration and other studies. Seeds of 8 medicinal plants have been sown in the green house/beds. Plants of different habitates including sub-alpine and arid regions have also been introduced in the garden.

About 180 kg. of dry/fresh material comprising of seeds roots etc. have been collected and deposited in the Central drug Depot of the Centre.

Indian Institute of Ayurveda for Drug Research, Tarikhet (IIADRT) :

The herbal garden of the Institute is situated at Kumaon hills of Ranikhet at an altitude of 1710 metres m.s.l. comprising of about 8 acres of land being maintained, out of which 5 acres of land is utilized for cultivation programme and research studies which includes 1.5 acres for Saffron cultivation. A

small medicinal plants garden at Chamma about 400 kms. from Raniket is also maintained under this Institute for cultivation purposes. In the garden more than 100 medicinal plants have been maintained and the data with regards to their adoptability etc. have been recorded.

At Chamma Vanoushadhi Vatika in Tehri Dist. 35 medicinal plants are being grown and maintained. Seeds of some important medicinal plants (20 spp). have been sown during the reporting period.

Experimental Cultivation of Saffron:

In the experimental cultivation programme of 'Saffron' at Tarikhet in an area of 1.5 acre data pertaining to the adoptability, growth, yield besides other experimental studies have been recorded. The cultivation of 'Saffron' in this habitat is successful and a remarkable achievement.

During the reporting period due to unfavourable conditions the flowering was observed comparatively less. 1789 flowers were collected which yielded 14 gms. of dry saffron-stigmas. An experimental study to increase size and quality of corms using nutrient mixtures/harmones was conducted. During the period more than 25000 corms have been planted as an extension in other parts of the garden.

Musk Deer Breeding Programme:

The musk deer breeding farm in an area of 2 acres of land, was established during 1972 at Mehroori district, Almora at an altitude of 2250 metres. Climatically the area is alpinesubalpine, moderately humid and covered with evergreen forest comprising of Oaks, Rhododendrons, Utilis and under cover of various shrubs and herbs. There are 12 female and 8 male musk deers, in all 20 adult animals have been maintained in the farm.

During the period under report (1997-98) observations and data pertaining to life cycle, growth/development, food habits, reproduction etc. were recorded. Scarcity of fodder plants in the area have been indicated, which may affect the health of the deers.

PHARMACOGNOSY RESEARCH STUDIES

The Pharmacognostical investigations play an important role in the Drug Research Programmes. The studies covered details of the drugs in respect of the origin, botanical identification and correct determination of Ayurvedic nomenclature including synonym together with properties, botanical description and key characters. This comprehensive task includes study of different facets, such as morphology of drug parts including the sensory characters, cell and tissue structures (both qualitative and quantitative cell contents, preliminarily phytochemical analysis, thin layer chromatographic studies, detection of the chemical constituents like alkaloids, steroids and terpenoids, phenols, tannins, saponin, flavonoids proteins etc. fluorescence analysis, physical constant values including ash and extractive values, dry matters and moisture contents etc.

The analytical studies of the powdered drug which is considered to be of immense help in detection of adulterants was also carried out. These studies are useful in evolving the pharmacopoeial standards for single drugs besides helping in overcoming the controversy and confusion that exists regarding their proper identify/authenticity due to synonyms.

During the year 1997-98 the five Pharmacognostical Research Units of CCRAS located at Calcutta, Delhi, Jammu, Lucknow and Pune have taken up the Pharmacognostical investigations of the following drugs widely used in Ayurveda.

AKHUPARNIKA (Merremia gangetica (Linn.) Cufo.) : Whole Plant

BILVA (Aegle marmelos Corr.) : Stem bark

DHATAKI (Woodfordia fruticosa (Linn.) Kurz.) : Flower

KAKMACI (Solanum nigrum Linn.) : Stem

MAHANEEMB (Melia Azedarach Linn.) : Stem Bark, Leaf

MARUTHONTRI (*Lawsonia inermis* Linn.) : Leaf

NAGBALA (*Sida spinosa* Linn.) : Root, Stem, Leaf

**SHANKHA PUSHPI (*Convolvulus microphyllous* Sieb.ex. Spreng.)
: Whole plant**

The Department of ISM & H, Ministry of Health & Family Welfare has identified 25 Institutions under "CENTRAL SCHEME FOR EVOLVING PHARMACOPOEIAL STANDARD OF ISM DRUGS". 5 units of the Council located at Calcutta, Delhi, Madras, Poona and Varanasi were also identified for this purpose. These units have layed down pharmacopoeial standards for 25 drugs.

PLANT TISSUE CULTURE

Plant tissue culture laboratory at JNAMP&H, Pune, continued experiments on *in vitro* propagation, rapid multiplication, seed germination and chemical studies like TLC studies on '**Sariva**' (*Hemidesmus indicus* R.Br.), '**Brahmi**' (*Bacopa monnieri* L.), '**Prasarini**' (*Paederia foetida* L.), '**Banafsha**' (*Viola serpens* Wall.), '**Guggulu**' (*Commiphora wightii* (Arn.) Bhandari) and Shalaparni (*Desmodium gangeticum* DC.) were carried out.

'**Sariva**' (*Hemidesmus indicus* R.Br.): The complete plantlets which were grown *in vitro* conditions were used for further trials to evaluate response on healthy rooting. Liquid MS+2.0 mg/l of IAA was used and plantlets were kept on filter paper bridge. Positive results were obtained and healthy rooting obtained. Hardening of plantlets in another experiment showed 50% survival rate when grown on vermiculite. Leaf callus and leaf extract in Pet. ether showed spots similar to plants growing in field when TLC studies were conducted.

'**Prasarini**' (*Paederia foetida* L.): Experiments were conducted on *in vitro* regeneration through nodal sector explant. When MS medium was supplemented with 1 to 3 mg/l Kn, larger size of leaves were obtained than usual *in vitro* conditions. Experiments are still continued to obtain plantslets for further hardening. Earlier obtained plantslets through PTC were transferred to vermiculite where 50% survival rate was obtained.

'**Banafsha**' (*Viola serpens* Wall.): Experiments were conducted for rapid multiplication and *in vitro* regeneration. In earlier experiments callus obtained from leaf petiole was used again for regeneration. An experiment was conducted using petiole and callus as explant, inoculated on MS medium-supplemented with varying concentrations of auxins and cytokinines. Positive response towards morphogenesis of root formation was achieved with NAA & Kn. 4.0 mg/l.

'**Guggulu**' (*Commiphora wightii* (Arn.) Bhandari): Experiment on tissue culture of Guggulu were initiated and leaf and nodal sector were inoculated on MS basic supplemented with different concentrations of hormones like

NAA & Kn. Nodal sector showed callus formation and initiation of poorly developed fibrous roots. In seed germination experiments - unripe fruits were placed on MS medium after treating with 0.1% GA₃ only swelling of fruits was observed. Further trials are continued.

'Shalparni' (*Desmodium gangeticum* DC.): Tissue culture studies were initiated this year on **'Shalparni'**. Nodal sector with axillary buds were used as explant on MS+1.0 mg/l BAP. It showed callus formation. Trials are continued to initiate shooting through differentiation.

'Brahmi' (*Bacopa monnieri* L.) Further experiments on leaf culture and root culture showed *in vitro* regeneration of multiple shoots (upto 36-40) in 20 days from root callus on MS liquid medium.

CHEMICAL RESEARCH PROGRAMME

The medicinal plants have been given an exalting position as a source of new therapeutic agents for the treatment of various diseases. Phytochemical studies including isolation and characterization of active principles play an important role in the development of new drugs. The Chemical Research Units located at Calcutta, Chennai, Delhi, Hyderabad, Lucknow, Trivandrum and Varanasi have isolated active principles from 14 medicinal plants to carry out further studies. A brief resume of the work carried out during the year 1997-98 is reported as under.

1. 'Atavi-jambira' (*Atalantia monophylla* Corr.)

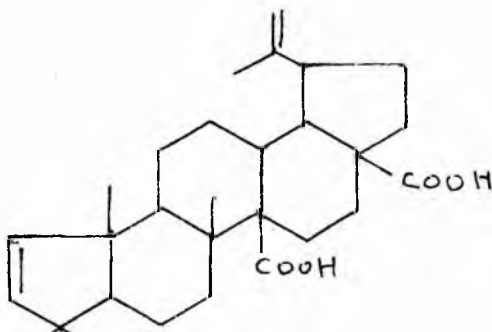
ChRUH

Powdered plant material (2kg) was extracted with petroleum ether. The extract after concentration under reduced pressure, when subjected to column chromatography yielded four compounds. Three compounds were identified as sitosterol, pimpenellin & isopimpenellin while the structure determination of the fourth compound, m.p. 134 is in progress.

2. 'Badara' (*Zizyphus Jujuba* Lam.)

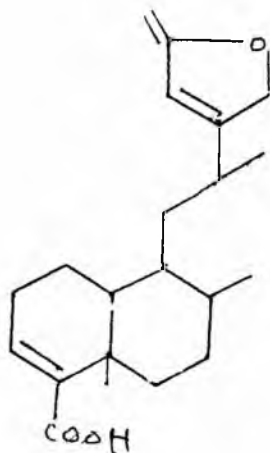
ChRUC

The petroleum ether extract of leaves after concentration and on chromatographic separation over silica-gel with solvent of increasing polarity afforded A-nor-lupa-2, 20 diene-14, 17-dicarboxylic acid (Fig.1, m.p. 354 which was reported for the first time from the genus *Zizyphus*.



3. 'Bharangi-Bheda' (*Clerodendrum nerifolium* Wall) CSM DRIAC

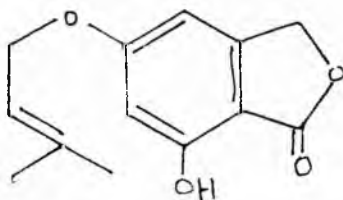
From the leaves and twigs of this plant, a diterpene acid belonging to the clerodane group was isolated along with the earlier reported flavonoid 5-hydroxy-4', 6', 7-trimethoxy flavone. The structure of the diterpene acid was established as cis-ent-cleroda-3, 13-dien, 15,16-olide-18-oic acid (Fig.2)



Ether and ethylacetate extracts of the leaves on column chromatography afforded quercetin & its 3-O-L-arabinoside and galactoside of quercetin. Their structures were elucidated by using various physical & spectral techniques.

5. 'Buki' (*Anaphalis contorta* Hook. f.) ChRUC

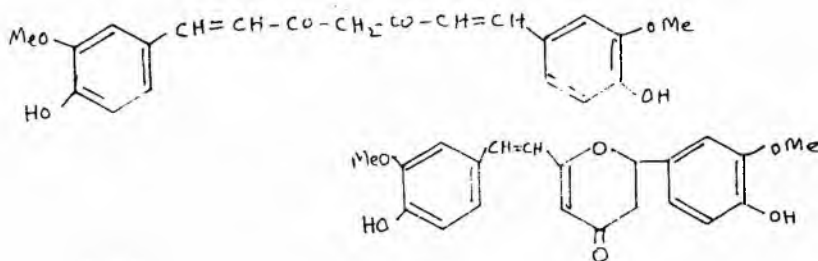
Alcoholic extract of the aerial part of the drug after concentration under reduced pressure afforded a light brown crystalline compound Buki-I which was purified by repeated crystallization. After various physical and spectral characteristics, Buki-I was identified as 5-O-3'-methylbut-2'-enyl-7-hydroxy phthalide (Fig.3.)



6. Haridra (*Curcuma domestica* Val. syn. *C. longa* L.)

ChRUC

The ethyl acetate extract of the rhizome of the *C. domestica* shows the presence of several non-nitrogenous compounds as observed on thin layer chromatogram over silica gel. The ethyl acetate extract on column chromatography over silica gel and elution with hexane and ethylacetate yielded curcumin (Fig.4), m.p. 181° and cyclocurcumin (Fig.5) Various physical, chemical and spectral techniques were used in the structural elucidation of these compounds.



7. Hewittia bicolor Wt.

ChRUC

The ethanolic extract of whole plant obtained by percolation was concentrated and fractionated with petroleum-ether, methylene chloride and ethylacetate. Concentrated methylene chloride extract was subjected silica gel column chromatography. The column was eluted with solvents of increasing polarity starting with n-hexane. Three solid compounds designated as WB-1, m.p. 58-60°, WB-2, m.p.75-58° and WB-3 m.p.90°-91° were isolated. IR spectra of the above three compounds was also studied. Further structure elucidation work is in progress.

8. Lasun (*Allium sativum* Linn)

ChRUH

Lasun bulbs (1kg) were crushed and extracted with petroleum-ether. A light yellow oil (5ml) of pungent unpleasant strong odour was obtained. This oil was found to be optically inactive. Another 1kg of the bulbs from local market when subjected to steam distillation yielded oil, which after purification measured 4.5ml. The oil indicated the presence of sulphur and iodine. Fractional distillation of the oil was done and three fractions were collected at 110-112°, 115-116° and 120-124°.

9. Mukkopeera (*Passiflora foetida* Linn)

ChRUC

The plant material was extracted with n-hexane, concentrated and chromatographed over silica gel. Two solid compounds designated as PF-1, m.p.148-150° and PF-2, m.p.255° were isolated. Both the compounds are under process of characterization.

10. Pithari (*Glossocardia bosvallia* DC)

ChRUH

Air dried plant material (About 2kg) was extracted successively with petroleum-ether, chloroform and methyl alcohol. Steroid compound and an alkaloid were present in very small quantity in the extracts. Tissue culture work on this plant is giving encouraging results.

11. Pulivasi

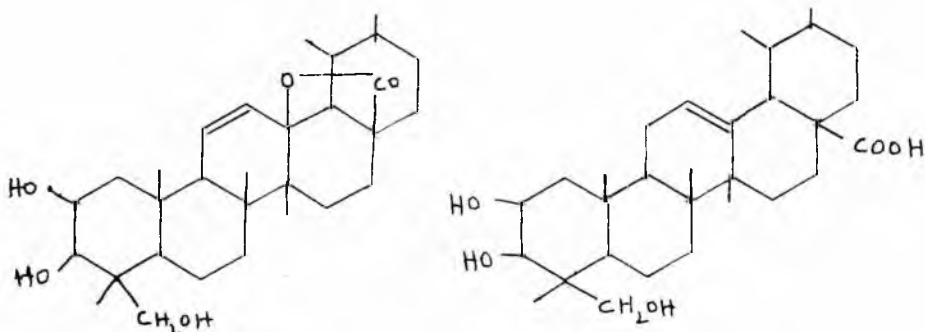
CSMDRIAC

The anthraquinones, chrysophenol and emodin present in the drug, 'Pulivasi' sold in Chennai market were quantitatively estimated by high performance thin layer Chromatographic method.

12. Shal (*Shorea robusta* Gaertn.F.)

ChRUC

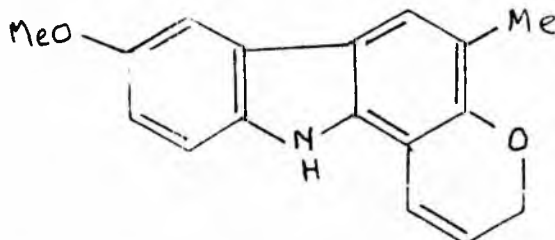
The gum-resin of *Shorea robusta* was percolated with solvent ether. The marc left after extraction with ether was soaked in CHCl_3 . The concentrated CHCl_3 extract on chromatography over silicagel and elution with solvents of increasing polarity yielded 20 (3B 23-trihydroxy-urs-11-en-13B, 28-olide (Fig.6) and 20 3B 23-trihydroxy-urs 12-en-28-okc acid (fig.7) Structure elucidation was carried out by using I.R, ^1H NMR and ^{13}C NMR spectral data. The ^{13}C NMR spectral data of the acetates of these compounds are being reported for the first time and also constitute their (in hydroxy form) first occurrence in this species.



13. Surabhi Nimba (*Murraya koenigii* (L.) Spreng.

ChRUC

The hexane extract of leaves on concentration and chromatographic separation on silica gel column yielded two compounds viz. MK-1 & MK-2. Physical and spectral characterisation of MK- 2 established its structure as Koenimbine (Fig.8).



14. Villayati Tulasi (*Hyptis suaveolens* Poit.)

ChRUT

Sitosterol α amyirin, kaempferol & its 3-O-rhamnoglucoside were isolated from the leaves.

ChRUC

From n-hexane extract of the aerial parts of *H.suaveolens* four compounds coded as HS-1 (m.p. 252-254) and HS-2 (m.p.184-186), HS-3 (m.p.122-124) & HS-4 were isolated through chromatographic resolution. All these compounds belong to the triterpenoid group. Structural characterization is in hand.

15. Standardization Work

ChRUC

Standardization work on AYush-64, the antimalarial drug. AYUSH-56, the antiepileptic drug and the antifertility drug *Pippaliyadi Vati* have been carried out.

16. Miscellaneous Work

ChRUT

- (i) Qty. of Neem oil worked out- 110 Litres
- (ii) Qty of Nimbathiktham isolated/supplied to the clinical/ Pharmacology Unit-3.5 kg.
- (iii) Qty. of Psoralin oil supplied to clinical section - 750 ml.
- (iv) Qty. of *Cassia fistula* oil supplied to clinical section - 800 ml.

PHARMACOLOGICAL RESEARCH PROGRAMME

Drug Research is a continuous process and studies on experimental animals constitute an important component of it. The Pharmacological and Toxicological studies play a vital role in development of new drug as well as confirmation of claimed therapeutic efficacy. The pharmacological research programme of the Council is being carried out at various Institutes and Units of the Council located at Calcutta, Cheruthuruthy, Delhi, Jaipur Jhansi, Lucknow, Mumbai, Patiala, Trivandrum and Varanasi. During the reporting period 21 single drugs, coded drugs and compound formulations were studied. A brief resume of these studies is as under.

1. *A compound Preparation*

PhRUL

The Swet Papari, Kultha, Gokhura, Pashanbheda and Shilajit were analysed for their role in altering the constitution of urine in such a way that it can prevent the urolithiasis. The result showed that these herbal preparations are very effective in preventing experimentally induced hyperuricaemia, hypercalcaemia, hyperoxaluria and hyperphosphaturia. This compound formulation has slowed down the progress of size of stone remarkably.

2. *Auto-urine Therapy*

IIPC

Studies on auto-urine therapy in rats were also undertaken. Decreased rate of weight gaining was noticed in auto-urine therapy group compared to control.

3. *Badradaru (Cedrus deodara (Roxb.) Loud.)*

IIPC

Decoction of Badradaru (1 gm/kg) showed mild anti-inflammatory effect in hind paw oedema while in xylene induced ear oedema it showed marked antiinflammatory effect. There was very poor affect in chloroform extract. Analgesic effect was noted in alcoholic extract whereas decoction and other extracts did not show any effect. Petroleum-ether and decoction showed mild potentiation of pentobarbitone induced sleep.

4. *Bimbi (Coccinia indica Wight.)*

IIPC

Petroleum-ether (60-80°), chloroform and ethanol extracts and decoction of the leaves were prepared and studied for their pharmacological actions.

The extracts were administered orally in a dose 100 mg/kg (*p.o*) and decoction 1 gm/kg (*p.o*). The ethanol extract showed mild anti-inflammatory effect while the other extracts and decoction did not show any significant effect.

5. *Bougainvillea spectabilis*

PhRUC

The liver & pancreas of the different groups of animal treated with the alcoholic extract of aerial parts of the drug for 28 days were fixed for histological studies. Significant changes in B-cells of pancreas and fatty changes in liver were observed.

6. *Gandhamarjara* (Civet Cat)

IIPC

Civet is being collected for use in the preparation of various drugs. Breeding trials have not been successful so far due to various reasons.

7. *Jatamansi* (*Nardostachys jatamansi* DC.)

IIPC

Effect of the decoction on acetic acid induced writhing was noted for half an hour. Decoction (1gm/kg) showed anti-inflammatory effects and mild analgesic activity.

8. *Jayapala* (*Croton tiglium* Linn.)

PhRUT

The alcoholic extract of the drug was further evaluated for its cathartic effect in rats and showed significant activity at 500mg/kg. Further studies are in progress.

9. *Lavang* (*Syzygium aromaticum* (Linn.) Merrill. & Perry)

CRIM

Clove powder in a dose of 1gm/kg orally did not show significant anti-inflammatory effect as compared with hydrocortisone (40mg/kg) orally.

The drug powder in a dose of 1mg/kg in mice failed to show analgesic effect by hot water method as compared with standard drug aspirin (600mg/kg) orally.

The clove powder failed to show antipyretic effect as compared with paracetamol and Tribhuvankirthi which shows more reduction in rectal temperature.

10. *Muktasukti Bhasma*

PhRUJ

Muktasukti Bhasma (MSB) inhibited acute, sub-acute and chronic inflammation in albino rats as induced by subplanter injection of carrageenin, histamine, 5HT, nystatin and subcutaneous implant of cotton pellets. In all

the text procedure, the anti-inflammatory response of 100mg/kg of MSB was nearly comparable to the response observed with 300mg/kg of acetyl salicylic acid (ASA). Oral premedication with MSB delayed castor oil induced diarrhoea in rats indicating its prostaglandin like inhibitory activity. Based on the data of studies, it is inferred that the anti-inflammatory activity of the compound is attributable to its ability to cause inhibition of prostaglandins, histamine 5-HT and also stabilization of the lysosomal membranes. The anti-inflammatory activity of MSB seems one third to half as potent as ASA.

11. *Pi-A coded drug*

PHRUC

The drug Pi at a dose level of 20 & 40 mg/kg body wt. was administered to normal rat 1.5 hrs. before the exposure to analgesiometer. Tail immersion test was also carried out. In both the above study, There was no difference between control & experimental group suggesting that the drug has no analgesic effects.

Apparently the drug Pi seems to have CNS effective properties. It increases skeletal muscular activity. The sleeping time induced by pentobarbitone shows reduction in sleeping time when compared with the control. Hole-Board experiments suggest suppression of exploratory behavior. There is no loss of reflex action & drug is not neurotoxic.

12. *Pippalayadi Yoga*

CRIM

Pippalayadi Yoga in a dose of 1.6gm/kg orally and vehicle (Tween 80 + water) as control was given for 13 weeks to male and female rats and the investigations carried out viz. body weight, food intake, water intake, organ weight, haematological study are under study.

13. *Pippali (Piper longum Linn.)*

TRUJh

Toxicity studies on this drug were carried out on experimental laboratory animals. The drug was orally administered to rats for 15 days in graded doses. No untoward effects were observed on the normal behaviour and other physiological activities of these rats. No mortality was noticed during the treatment period and even after 15 days of treatment. Their body weight remained unaffected. Feed and water intake was normal. Stool and urine excretion was also normal. Macroscopically the viscera did not exhibit any morbid change whereas microscopically there were pathological changes in the liver, lung, spleen and kidney of treated rats. The haematological parameters were found to be within the normal limits.

Further the drug did not exhibit surface anaesthetic activity on rabbits eyes. The acute toxicity study in rabbits did not show any mortality or morbidity.

14. Rudraksa (*Elaeocarpus sphaericus* (Gaertn.) K.Schum) PhRUV

Different extracts of fruits showed significant anti-inflammatory effect in the doses of 50-200mg/ kg when given i.p 30 min. before test. Formaldehyde induced rat paw oedema was significantly inhibited by all the extracts during sub-acute inflammation experiments.

Extracts also showed significant increase in reaction time after 45-90 min. of administration during analgesic activity tests.

The fractions of the drug significantly enhanced pentobarbitone sleeping time. The animals showed dull writhing in all the groups receiving higher dose, both by p.o. and proutes. LDS 50 of the extracts of the drug were petroleum-ether 620, benzene 560, chloroform 670, acetone 575 and ethanol 780 respectively. All the extracts 200mg/kg, *i.p*) showed a tendency to decrease immobility significantly except potroleum-ether and ethanol.

Various extracts (200 mg/kg, c.p.) protected guinea pigs against bronchospasm induced by histamnic and acetyloholine aerosol when administered 30 min. prior the aerosol challenge. The extract signigicantly reduced ulcer index. All the fractions were tested against both gram positive and gram negative bacteria and acetone extract was found to have anti-bacterial activity.

15. Silajit

PhRUL

The antidiabetic potential of Suddha Silajit was evaluated experimentally, in very detail, using various experimental models and its comparison with very commonly used oral hypoglycaemic agent Daonil as well as its role as an adjuvent to modern antidiabetic therapy. The results are encouraging and this drug can also be evaluated clinically.

16. Sigru (*Moringa oleifera* Lam.)

PhRUT

Methanol extract of the root-bark of Sigru was screened to detect hypoglycaemic, analgesic, anti-inflammatory and anthelmintic activities, effect on CVS and autonomic pharmacology (*in vitro*). Both the acute and sub-acute toxicity tests were also carried out in mice and rats. The drug exhibited significant hypoglycaemic, analgesic, antiinflammatory and anthelmintic activity in experimental models. No. toxicity was noticed.

17. Tankana**TRUJh**

Toxicity studies on this drug were continued out on experimental laboratory animals. The drug was orally administered to rats for 15 days in graded doses. No untoward effects were observed on the normal behaviour and other physiological activities of these rats. No mortality was noticed during the treatment period and even after 15 days of treatment their body weight remained unaffected. Feed & water intake was normal. Stool & urine excretion was also normal. Macroscopically the viscera did not exhibit any morbid change whereas microscopically there were pathological changes in the liver, lung, spleen & kidney of treated rats. The haematological parameters were found to be within the normal limits.

Further, the drug did not exhibit surface anaesthetic activity on rabbits eyes. The acute toxicity study in rabbits did not show any mortality or morbidity.

18. Trypanosoma cruzi strain-Maintenance**PhRUC**

Albino mice were inoculated *i.p* in glucose saline. The animal showed parasitemia in 15 days in the blood smear and it was maintained for a month or more.

19. Vidanga (Embelia ribes Burm.f.)**PhRUL**

Vidang in the doses upto 4gms/kg body weight did not produce any adverse reaction/effect or mortality during the period of observation. Thus, it could be concluded that the drug is safe up to 4gm/kg body weight in rabbits by oral route. The drug did not exhibit surface anaesthetic activity on rabbits eyes.

20. Visamusti (Strychnos nuxvomica Linn.)**IIPC**

Petroleum-ether (60-80°), chloroform and ethanol extracts and decoction of the seeds were prepared. Petroleum-ether extract (100mg/kg) and decoction (10mg/kg..0) showed mild anti-inflammatory effect.

21. Visnugandhi (Evolvulus alsinoides Linn.)**PhRUT**

Methanol extract of the drug showed CNS sedative effect by prolonging the pentobarbitone sleeping time in mice. The drug did not exhibit any toxicity or mortality upto 100mg/kg. *p.o* or *i.p*.

DRUG STANDARDIZATION RESEARCH PROGRAMMES

Standardization of drugs is an important aspect in Health Care System as it determines the authenticity of medicinal formulation and genuine single drugs for use. Standardization of Ayurvedic drugs consisting of herbal, mineral and animal origin drug is a difficult task. The Council undertook the task of standardization and laying down physico-chemical values of the single drugs that are entering as ingredients in the formulations. It also has undertaken standardization of process of manufacture like Asava, Arista, Avaleha, Bhasma etc.

Standardization of formulations compiled in Ayurvedic Formulary of India (Part I & II) has also been done under the Council long back and nearly 98% of the formulations have been prepared by the units themselves and standardized after evolving its own standards as there was hardly any standard method available for such complex formulations of Ayurveda. The standards of Formulations laid down by the Council of Ayurvedic Formulary of India (Pt. I & II) are being screened through a Screening Committee appointed by APC with the aims to adopt these standards of Formulations in official Pharmacopeia of Government. The Council has also undertaken standardization work of 'Shelf Life Study', 'Packing material' etc. The safety and efficacy aspect of the drug is taken up by Pharmacological Units and the establishment of the identity of drugs by Pharmacognosy units under the Council.

As a second phase of study the Council has worked out plan to lay down analytical values and to identify main and other costly ingredients and by preparing different proportionate ingredients in different quantity or by deleting some of them other than the standard formulary and to establish whether there is any change in the analytical values. Efforts are also being made to prepare fingerprints of single and compound drugs through chromatographic studies to make standardization work more comprehensive. The standardization labs are being equipped with such equipments e.g., G.L.C., HPTLC and NMR which are latest tools in such Research work.

The Ministry has allotted 10-12 single herbal drugs occurring in official Formularies of Ay., Siddha, Unani, Homoeo to various organisations including a few to the Councils Units e.g. CSMDRIA-Chennai, JNAMPG&H-

Pune, CCRAS-Hqrs. Office, DSRP Varanasi and Jamnagar. In this report only names of Ayurvedic plants are incorporated.

Details of work done during 1997-98 by various Units located at Chennai, Bangalore, Trivandrum, Jamnagar and Varanasi are as follows:-

Standardization of Single Drug:

Vasa	<i>Adhatoda vasica</i> (L.) Nees	RRI-T
Lodhra	<i>Symplocos spicata</i> Roxb.	"
Nilotpalam	<i>Monocharia hastaefolia</i> Presl.	"
Tila	<i>Sesamum indicum</i> L.	"
Daruharidra	<i>Coscinium fenestratum</i> (Gaertn.) Colebr.	"
Salparni	<i>Desmodium gangeticum</i> (L.) DC	"
Agnimanth	<i>Premna integrifolia</i>	"
Salmali	<i>Bombax ceiba</i> L.	"
Udumbara	<i>Ficus racemosa</i> L.	"
Vata	<i>Ficus benghalensis</i> L.	"
Aguru	<i>Aguilaria agallocha</i> Roxb.	"
Pluksa	<i>Ficus gibbosa</i> bl.	"
Sati	<i>Kaempferia galanga</i> L.	RRI-T
Kustha	<i>Saussurea lappa</i> Clarke	"
Manjistha	<i>Rubia cordifolia</i> L.	RRI-T, RRC-B
Candan	<i>Santalum album</i> L.	"
Haritaki	<i>Terminalia chebula</i> Retz.	RRI-T
Ajagandha	<i>Gynandropsis gynandra</i> L. (Brig.)	DSRP-J
Bakula	<i>Mimusops elengi</i> L.	"
Bhumyamalki	<i>Phyllanthus amarus</i>	DSRP-J, DSRP-V
Bimbi	<i>Coccinia indica</i>	"
Erand karkati	<i>Carica papaya</i> L.	DSRP-V
Rohitaka	<i>Tecomella undulata</i> G. Don.	"
Slesmantak	<i>Cordia dichotoma</i> (Stem-bark, Dry fruit)	"
Amlavetas	<i>Garcinia pedunculata</i>	CSMDRIA-C
Copcini	<i>Piper cubeba</i>	"
Karpurvalli	<i>Coleus ambonicus</i>	"
Peelu	<i>Salvadora persica</i>	Hqrs.
Darbha	<i>Imperata cylindrica</i>	"
Potgal	<i>Typha elephantina</i>	"
Riddhi/Vriddhi	<i>Habenaria intermedia</i>	"
Rumimastagi	<i>Pistacia lenticus</i> (gum)	"
Gundra	<i>Typha australis</i>	JNMG-P
Matsyakshi	<i>Alternanthera sessilis</i>	"
Dhanwayasa	<i>Fagonia cretica</i>	"

Ankola	<i>Alangium salvifolium</i>	"
Medasak	<i>Litsea chinensis</i>	"

Pharmacognostic Study:

Ajagandha	<i>Gynandropsis gyanandra</i> L. (Brig.)	DSRP-J
Bakula	<i>Mimusops elengi</i>	"
Vata	<i>Ficus benghalensis</i>	RRC-B
Bhringaraja	<i>Eclipta prostrata</i> (L.) L.	"
Manjistha	<i>Rubia cordifolia</i>	"
Pasanbheda	<i>Coleus amboinicus</i>	"
Nagjihva (Mamajjak)	<i>Enicostemma littorale</i>	"

Phyto-chemistry:

<i>Clerodendrum nerifolium</i>	CSMDRIA-C
<i>Hyptis suaveolens</i>	RRI-T
Myristion	"

Standardisation of formulations :

Agnitundi vati	RRI T
Kanakasava	"
Kutajarista	RRC-B
Citrak haritaki	DSRP-J
Dasmoool kaduthraya kwatha	RRI-T
Vyosadi guggulu	"
Samangadiurna	"
Prabhakar vati	"

Shelf life study:

Draksavaleha (2nd year)	DSRP-J
-------------------------	--------

TLC study:

Yogaraj guggulu	DSRP-J
-----------------	--------

Microbiological study:

Agnitundi vati	CSMDRIA-C
Anandbhairava Rasa	"
Citrakadi vati	"

LITERARY RESEARCH PROGRAMME

The Literary and Medico-Historical Research Programmes of the Council are being carried out at Indian Institute of History of Medicine, Hyderabad; Documentation and Publication Division, New Delhi and Literary Research Unit, Chennai.

Indian institute of history of medicine, Hyderabad

The Institute is devoted for study, research and publication in the field of history of all systems of medicine particularly Indian Systems of Medicine. The main stress was given for collection of source material pertaining to history of medicine, collection and study of manuscripts, rare books, editing and translation of important treatises, of information from nonmedical sources, archaeological, epigraphical, hereditary physicians etc. The Institute is maintaining Library and Museum of medico-historical importance and published a bi-annual magazine viz:- "Bulletin of Indian Institute of History of Medicine".

During the reporting period under the biographical studies of commentators on classical treatises of Ayurveda and Unani Physicians, material on 2 commentators has been compiled and articles prepared. 16 old (rare books of ISM were collected including one paper manuscript in Telugu language, having compilation on various Ayurvedic formulations. Three articles on medico-historical value have been prepared. Research papers have been presented in the International Conferences at Italy, Germany and in Hyderabad.

The Institute organised a re-orientation training programme on History of Ayurveda from 5-5-97 to 31-5-97, sponsored by Ministry of Health & F.W., (Deptt. of ISM&H), Govt. of India, New Delhi.

Documentation and Publication Division, New Delhi.

(i) *Ausadha pralekhana*

Classical Ayurvedic reference on 7 mineral drugs viz. *Kasisa*, *Tutam*, *Anjana*, *Abhraka*, *Gandhaka*, *Kharpara* and *Parada* have been collected from the ancient texts, besides gathering details on *Karvellaka* from Samhita/Samgrah granthas and Nighantus.

(ii) Research Information Storage & Retrieval:

Information on 120 research articles generated in the scientific journals, technical reports and seminars/conferences on Ayurveda and Siddha alongwith allied sciences has been compiled with a view to enrich data base of research information on Ayurveda and Siddha.

(iii) Bibliographical series on clinical research

Information was updated further by adding 230 additional references on clinical research.

(iv) Documentation Bulletin

The issue No. 2-4 of Vol. 17 of this Bulletin was released besides finalizing its conjoined issue No. 1-2 of Vol. 18.

(v) Library

The Library procured 268 new books on Ayurveda, Siddha and allied sciences as per recommendations of the Library Committee.

Important rare works on which information has been collected include Vrksa Ayurveda, Viswanath cikitsa, Vaidya Kalpdruma, Vrksa Ayurveda & Vaidya Cintamani were also procured.

Information on 46 Indian patents on herbal drugs & plant products was collected as per recommendation of the Library Committee.

(vi) Publication Programme

The issues of 'News Letter' for the period March'96 to Aug'96, Sept.'96 to Feb.'97 and March' 97 to June' 97 were released. The publication Wing also brought out the conjoined issues No. 3-4 of the 16th Vol. of the J.R.A.S. for the year 1995 and conjoined issues of B.M.E.B.R.No. 3-4, Vol. XVII, 1996.

The monographs published are:

- (1) Astanga Samgraha - Pt. I (B)
- (2) Medicinal Plants of Kachcha
- (3) Theriyar Kudineer

Periodical subscription to the extent of Rs. 7,120/- was received besides sales of monographs of Rs. 68,934.95.

(vii) Award

Awarded Prof. K.A. Thakar *Best paper Award* for best paper coauthored by Dr. D.P. Sharma & published in the Journal of Institution of Chemists (India), 1996 on 14.3.1998.

Literary Research Unit, Chennai

The Unit is conducting survey tours to collect the old manuscripts of Ayurveda and Siddha and maintaining Library of important books and Manuscripts. The selected manuscripts are being studied for their translation and publication. The books/Manuscripts are preserved in the library by using Naphthaline balls, anti insect sprayers, Lemon grass oil, citronella oil etc. In the palm leave manuscripts the threads are changed periodically. Cataloguing is also done for books, periodicals and manuscripts for easy location. 95 back volumes, 90 copied volumes and 69 manuscripts are available in the Library.

The xerox copies of the 35 manuscripts taken from the Central Library of Anna Hospital - Chennai are being scrutinized and the numbering work is being done. After completing this work the binding work will be done as per codal formalities.

A survey tour was conducted to Kanchi Muth Library and the informations on following important manuscripts have been gathered.

1. Camatkar Cintamani
2. Sannipata Lakshnam
3. Sarva Kasa Bhesajam
4. Akamata Tailam
5. Aswagandhadi Curnam
6. Usat Paneeyam
7. Jyotismati Kalpam
8. Jvara Kasya Yogam
9. Jvara Nidanam
10. Taila Prayogam
11. Maharasa Prayogam

AMCHI RESEARCH UNIT, LEH-LADDAKH

The Clinical Research Unit of Tibetan/Amchi at System of medicine is functioning under the council Leh-Laddakh since long. In order to re-organise and strengthen this system of medicine the Unit has undertaken Clinical trials on the diseases prevalent in that area, collecting the raw drugs, used in Amchi System to cater the need of its O.P.D.

This year the team conducted tours to Khardonga area and Changla for collection of herbal and medicinal drugs. 20 different important plants have been collected for the use in O.P.D. of the Unit, some of the plants were also collected for herbarium specimens. Another tour has also been conducted to Indus Bank and Chumathang where large number of plants are available. The team has collected around 25 different kinds of herbs which are important for medicinal use.

The Unit is also compiling the work on the rare manuscripts of Tibetan medicine. The Unit has found out 20 different Ayurveda literatures in 'Stan-Gyur', out of these 9 are important literatures.

During current year the Unit has treated 720 male, 900 female (Total 1620 patients) in O.P.D., suffering from different ailments, out of which 10 patients were treated with Accupuncture (Golden needles), 7 patients with Couping therapy, 3 with Venisection, 15 patients with Moxibustion and 25 with Hydro therapy.

FAMILY WELFARE RESEARCH PROGRAMME

The programme has two main aspects namely clinical trials and chemico-pharmacological studies including toxicological studies. The clinical trials of herbal, herbo-mineral formulations and single plant drugs are conducted on women of child bearing age group (15-45 years) for their antifertility potential. On the other hand chemical pharmacological Research Programmes are designed to study the effect of soft extracts of plant drugs for their anti-fertility, anti-implantation, anti-ovulatory and estrogenic activities. The toxicological studies cover acute, sub-acute and chronic toxicity of the drugs.

Clinical Studies

Clinical evaluation of five drugs and drug combinations have been taken up at the Institutes/Units functioning at Amemdad, Bombay, Calcutta, Delhi, Jaipur, Lucknow, Madras, Patiala, Trivandrum and Varanasi. The details about the number of new cases included into the study during the reporting period, number of old cases carried forward from previous years number of drop outs and number of cases continuing at the end of the reporting period (separately for each drug) are reported in table No. 1. (pp. 71). The clinical evaluation of the drugs based on the studies of yester years is given in table No.2 (pp. 72).

Special Research Programme:

- A. A special research programme to see the clinical efficacy of Pippalyadi yoga has been started on the recommendations of the Committee chaired by Professor Ranjit Rai Chowdhury, N.I.I., New Delhi, at following places recently:
 - 1. PGI, Chandigarh under Dr. Sarla Gopalan
 - 2. JIPMER, Pondichery under Dr. Asha Umachigui
 - 3. Kamla Nehru Hospital. Allahabad under Dr. Raj Baweja

- B. CCRAS also participated under Family Welfare Research Programme in India International Trade Fair (IITF) recently held at Pragati Maidan from 14.11.97. A total number of 450 cases of different ailments were attended. Out of them 81 cases were referred to CRIA, Punjabi Bagh, New Delhi for seeking advice and necessary medication under Family Welfare Research Programme.

Chemico-Pharmacological studies

Chemico-pharmacological studies were carried out at the Units functioning at Bhubneshwar, Jamnagar, Trivandrum, Varanasi and toxicological studies at Jhansi.

Pharmacological/Toxicological studies are as under:

Banjauri (*Vicoa indica*) whole plant,

Arka (*Calotropis procera*) Leaves and roots.

Anti-implantation and toxicity studies,

Nirgundi (*Vitex negundo*), Anti-implantation activity (Stem extract),

Karavitori (*Luffa acutangula*) - Anti fertility effect,

Ghrit Kumari (*Aloe barbadensis*),

Candan vati - clinical efficacy in dystorphic uterine bleeding.

Aloe Barbadensis (Ghrit Kumari)

50% alcohol extract of leaves taken for acute toxicity studies. Extract were given orally as well as i.p. toxicity was studied in Albino mice in the doses of 10, 20, 40, 50 and 100 ml/kg body wt and observed for 48 hours. No mortality was observed.

TRUJH

PIPPALYADI YOGA

Vidanga (*Embelia ribes*)

Tankan (*Borax*)

Pippali (*Piper longum*)

Ingredients of Pippaliyadi Yoga were orally administered to rats for 15 days in graded doses. No untoward effect could be observed. No mortality noticed during the treatment period and even after 15 days post treatment. Body weight remained unchanged. Food and water intake normal

Microscopically - the viscera did not exhibit any morbid change, whereas there was pathological changes in the liver, lung, spleen and kidney of treated rats. These changes did not subside even after fifteen days after the cessation of medicine.

The haematological parameters were found to be within normal limit. The three drugs did not exhibit surface anaesthetic activity on rabbit eyes.

The acute toxicity studies in rabbits did not show any mortality or morbidity.

PhRUFB

1. *Aloe barbadensis* - (Ghritkumari)
2. *Luffa acutangula* - (Karavitori)
3. *Buddleja asiatica* - (Nawarpathi)
4. *Costus speciosus* - (Kebuka)
5. *Calotropis procera* - (Arka)
6. *Carica papaya* - (Papita)

Anti fertility trials conducted earlier ALP, SGOT, SGPT, tests are tried and there is no significant increase in serum enzyme level.

Further preliminary attempts made to investigate genotoxic effect of prolonged use of the drug employing *in vivo* micronuclear test, chromosome aberration in bone marrow cell.

PhRUFV

Azmoda Seeds (Apium graveolens)

Aqueous, Ethanol or petroleum ether Extracts, extract of seeds were studied for Antifertility effect. Arbitrary doses of different Extracts in ratio of 300 - 800 mg body wt. were orally administered to pregnant Albino rats for 0-8 days of their pregnancy. Results - did not show any significant effect on pregnancy during preliminary test so no further study is required.

PhRUFV

Areca catechu (Betel Nut)

Antifertility effect were studied with Aqueous Extract and Ethanolic extract.

Extracts administered orally to the pregnant albino rats in arbitrary doses of 300 - 800 mg/kg for 0.8 days. No significant effect observed during preliminary test.

PhRUFT

Aloe barbadensis (Ghrit Kumari)

Anti implantation activity - Proven fertile female albino rats were taken for anti - fertility studies as per WHO protocol.

Alcohol extract of ghrith kumari was given orally in doses of 1 ml/100 gm body wt from day 1 to day 10 of pregnancy. There was no significant anti-implantation activity. Further studies are being planned to test the drug in higher dose levels.

PhRUFJ

***Luffa acutangula* (Karavitori)**

- A. The seeds powder in a dose of 1330 mg/kg was administered to female rats to see the anti-fertility effect of the drug. Seeds powder inhibited pregnancy in 50% fertile proven rats. It did not affect litter size. Data indicates presence of moderate antifertility activity.
- B. **Effect on sexual behaviour in male rats:** - whole plant powder was administered to male rats to see the effect on their sexual behaviour. Drug was administered in a doses of 1330 mg/kg - for 60 days to young male rats. Study carried out twice with in 10 days gap, did not produce any statistically significant change in latency of onset and duration of sexual behaviour. It also did not affect body wt. gain pattern.

PhRUFT

***Corchorus* sp. (Bahuphali) Whole Plant**

Evaluation of effect of Bahuphali on sexual behaviour in male rats. Drug administered orally for,15 days did not produce any significant effect on the sexual activity during the season tested (Dec-Jan). It was noted that during this season overall sexual activity was drastically reduced in all male rats including control rats.

Hence the drug is being re-evaluated during the summer season (April & May).

**Statement of the cases Studied for Clinical
evaluation of the Contraceptive Agents during 1997-98**

Name of drug	Centre	Cases studied			Number of drop out					Cases continuing
		New	Old	Total	due d.f.	to d.o.	pregnancy Side. Effects	Other reasons	Total	
Ayush AC-IV	Lucknow	66	78	144	9	-	-	19	28	90 (26 cases completed 35 cycles)
	Trivandrum	50	68	118	-	-	-	79	79	
	Calcutta	19	13	32	-	-	-	13	13	
	Patiala	21	18	39	3	3	19	-	25	
	Bombay	15	52	67	8	-	-	4	12	
	Jaipur	99	19	128	30	20	15	17	82	
Pippalyadi Yoga	Calcutta	19	21	40	-	1	-	19	20	20
	Ahmedabad	34	53	87	-	2	1	21	24	63
Neem Oil	CRI Delhi	42	46	88	-	3	19	-	22	66 (trial completed)
K- Capsule	Varanasi	7	77	84	-	-	-	-	-	Nil (42 cases dropped out*)
Vandhyavari	Bombay	307	653	960	59	-	-	-	59	901

*Due to closer of Unit from 1st October, 1997 7 cases conceived after using the drug, 25-36 cycles, 35 discontinued due to their apprehension that prolonged use may produce some detrimental effect.

**Statement of the Cases Studied for
Clinical Evaluation of Oral Contraceptive Agents**

Drug formulations	Drug Analysed		Drug yet to be analysed	
	Number of women studied	Total number of women cycles studied	Number of women studied	Total no. of cycles studied
1. K-Capsule Japakusum (Hibiscus rosa sinensis)	776 (Max. cycles followed 103)	20344	565	
2. J-Capsule (Vlidanga Beeja)	88 (Max. cycles followed 36)	851	nil	These data are yet to be compiled or analysed.
3. Ayush AC-IV 4073		35615 (Max cycles followed 36)	2151	
4. Pippalyadi Yoga Group I	861	8607		
Group II	811	4438	606	
5. Neem Oil	43	450	220	

**Results
(Pearl Index-Hundred Women years-HMY)**

Details	Oral Contraceptives			I. V. Application		
	K-Capsules	J-Capsules	Ayush-AC-IV	Pipaliyadi Yoga Gr.I.	Gr. II	Neem Oil
Due to Drug failure	2.86	0	5.59	8.09	3.52	0
Due to patient failure	1.11	0	7.62	0.55	6.48	4.6
Combined (I+II)	3.67	0	13.21	8.64	10.00	4.6

PUBLICATIONS AND PARTICIPATIONS IN THE SEMINARS ETC. BY COUNCIL'S OFFICIALS

I. Publications on Ayurveda & Allied Sciences

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
A. Clinical and Basic Research				
1.	Acharya, M.V.	'Clinical study of <i>kirata-Tiktadi Yoga</i> (Vipkin) on Psoriasis.	Manphar Vaidya Patrika Vol. 1(No.1), 24-29	May, 1997
2.	Acharya, M.V.	'Clinical study of T.B. Formula on Bronchial Asthama'.	Manphar Vaidya Partika 1(2):18-22	Aug., 1997
3.	Kumar, A.&Kumar. N.	To evaluate the effect of Ayurvedic drugs (a herbo-mineral combination of <i>Sveta Parpati</i> with <i>Kulattha</i> in the management of <i>Mutrasmari</i> .	J.R.A.S., XVI (No. 1-2)35-421995	(Published in 1997)
4.	Kumar, A.&Kumar, N.	To evaluate the effects of <i>Palasa Ksara</i> in the management of <i>Mutrasmari</i> .	J.R.A.S., XVI(No.1-2)43-50	1995 (Published in 1997)
5.	Kumaraswamy, R.& Subhaktha, P.K.J.P	Historical Review of <i>Vicarcika</i> as per Ayurvedic Classics.	B.I.I.H.S.,27(No.2)	1997
6.	Kuppurajan. K. <i>et al.</i>	Hypoglycaemic and hypotriglyceridemic effects of <i>Methika Coorna</i> (Fenugreek).	The Antiseptic, 95(No.3):78	1998
7.	Mishra, D.K.&Shahi. V.K.	Kala-a-Zar and effectivity of some Ayurvedic formulations in its treatment-A camp report.	Sachitra Ayurveda.	May 1997

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
8.	Pathak, N.N.	<i>Brahattrayee Mein Satavari Ka Prayogika Adhyayana.</i>	<i>Sachitra Ayurveda</i>	Sept. 1997
9.	Swamy, G.K.	'Concept of Nasya Part-I'.	Manphar Vaidya Patrika Vol.1(No.1):19-21	July., 1997
10.	Swamy, G.K.	'Concept of Nasya Part-II'.	Manphar Vaidya Patrika Vol.1(No.1)30-33	Aug., 1997
B. Health Care Research & Ethno-Medicine				
11.	Uniyal, M.R.	<i>Mauritius Dweep Mein Upalabdha Ayurvedic Jari-Butiyon Se Upacar.</i>	Ayurveda Mahasammelan Patrika.	Jan., 1998
C. Dravya-Guna, Medico Botanical Survey & Cultivation				
12.	Hemadri, K.&Rao, S.S.B.	'Discovery of <i>Vanila wightiana</i> Lindl. An endangered Orchid from Chittoor district, A.P.	Indian Medicine, 47(No.9)	Dec., 1997
13.	Hemadri, K.&Rao, S.S.B.	'Quantitative assessment of Medicinal plants II, Chittoor District, A.P.	Manphar Vaidya Patrika Vol.1(No.8)	March, 1998
14.	Pathak, N.N.	<i>Nighantuaum Mein Sandigdha Tatha Lok Vanaspati Vijnana Evam Lok Jeeva Vijnana Mein Prachalita Kuchh Pramukha Vanausadhiyan.</i>	<i>Sachitra Ayurveda</i>	April, 1997
15.	Pathak, N.N.	Sandigdha Vanausadhiyon Ka Adhyayana.	<i>Sachitra Ayurveda</i>	May, 1997
16.	Pathak., N.N.	<i>Paryavarana Pradusana Ki Roktham Mein Vano Ka Yogadan</i>	<i>Sachitra Ayurveda</i>	Mar, 1997

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
17.	Pathak, N.N.	<i>Tulasi Ki Upayogita.</i>	Rastriya vaniki Ki Vaigyanik Patrika	1998
18.	Rawat. M.S. <i>et al.</i>	Medicinal Plants and some Folklores from East and West Siang districts (Arunachal Pradesh) their utilisaiion.	B.M.E.B.R. XVII(No.1-2):1-7	1996
19.	Rawat. M.S. <i>et al.</i>	Obeservation on Medico-Ethno Botany of Idu-Mishmis in Dibang Valley district of ArunachalPradesh.	B.M.E.B.R.XVII(NO.1-2):18-23	1996
20.	Rawat. M.S. <i>et al.</i>	Cultivation of some pharmaceutically impoftant medicinal plants in Itanagar, Arunachal Pradesh.	B.M.E.B.R.XVII(No.1-2)37-51	1996
21.	Sharma, P.C.& Mahendale, V.V.	Preliminary observation on Cultivaion of Trivritta (<i>Operculina tupethum</i> (L.) Silva Manso.	B.M.E.B.R., XVI(No.1-2),66995	Published in 1997.
22.	Singh, P.B.	New Records of Plants from Himachal Pradesh (India)-II	J.Econ. Taxon Bot 21(No.2),223-24	1997
23.	Uniyal, M.R.	<i>Tauns Ghati Ki Jari-Butiyan.</i>	Ayurveda Mahasammelan Patrika. Aug.,	1997
24.	Uniyal, M.R.	<i>Tauns Ghati Ka Prakritika Saundarya Evam jari-Butiyan.</i>	Sachitra Ayurveda.	Sept. 1997
25.	Uniyal, M.R.	<i>Uttarakhanda Himalaya Ki Vanausadhiyan Evam Khaniz Pustak Ki Samiksha</i>	Ayurveda Mahasammelan Patrika.	Dec. 1997
26.	Uniyal, M.R.	<i>Jammu-Kasimir Rajya Shthita Patni Shikar Ki Jari-Butiyan.</i>	Schitra Ayurveda.	Jan., 1998
27.	Uniyal, M.R.	<i>Bharat Mein Ayurvedic Ausadhi Dravyaun Ka Niryat.</i>	Ayurveda Mahasammelan Patrika.	Mar., 1998.

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
-------	-----------------------	--------------------	---------------------	---------------------

D. Pharmaceutical, Pharmacognostical & Chemical Research

28.	Barik, B. <i>et. al.</i>	Cemical constituents of <i>Cannabis sativa</i> .	J.Indian Chem. Soc., 74, 652	1997
29.	Chatterjee, A. <i>et.al.</i>	New synthesis of (±) 2,3, Dimethoxy hexahydro-berberine.	Indian J.Chem. 36m. 36B. 121	1997
30.	Dutta,S.K.& Verma, S.M.	Standardization of <i>Maksika Bhasma</i> .	Sachitra Ayurveda	Dec, 1997
31	Mallick, B. <i>et. al.</i>	Occurrence of Triacontanoic acid esters and a coumarin in root-bark of <i>Randia dumatorum</i> Lam. syn. <i>Xeromphis spinosa</i> Thumb.	J.Indian Chem.Soc.	Feb., 1998.
79	32. Sharma, D.P. <i>et. al.</i>	Studies in Heterocyclic Compounds Part- <i>XLII</i> .	J.Indian Chem. Soc. 73,614	1996
33.	Sharma, D.P. <i>et. al.</i>	Studies in Heterocyclic Compounds Part- <i>XLV</i> .	J.Inst. Chem. (India)	1996
34	Yelne, M.B.& Sharma. P.C.	Pharmacognosy of root and seed of <i>Mulaka (Raphanus sativus L.)</i>	B.M.E.B.R., XVII(No.1-2),24	1996 (Pub. in 1997)

E. Pharmacology

35.	Adhikary, P. <i>et. al.</i>	Antifertility effect of crude alcoholic Extract of <i>Piper betel</i> Linn. Stalk.	Indian J.Physio.&Allied Sci. 52(No.1), 29	1998
36.	Alam, M.M. <i>et. al.</i>	Hepatoprotective activity of <i>Narayana Curna</i> and <i>Lohasava</i> combination	Ancient Sci. of Life, Vol <i>XVI</i> (No.4):332	1997
37	Allirani, T. <i>et. al.</i>	Chemical and microbial investigaion of <i>Indigofera aspalathoides</i> .	Chemistry and Biology of Herbal Medicine., 15-20	1997

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
38	Atyindra, R.S. & Dixit, K.S.	Effect of <i>Embllica officinale</i> and <i>Aegle marmelos</i> on swimming induced stress in mice	Indian J. Physio. & Pharmaco. 41(No.5), Suppl.	1997
39	Gujarati, V. et. al.	Effect of <i>Embllica officinale</i> of super oxide Dismutase and lipidperoxidation in liver and brian.	IndianJ.Phasio.&Pharmaco. 41(No.5) Suppl.	1997
40.	Mona, et. al.	Effect of the AYUSH-82 in hyperglycemia.	Indian J.Physio.& Pharmaco. 41(No.5) Suppl.	1997
41.	Saxena. S. et. al.	Effect of Cardipro, a polyherbal preparation in the therapy of Angina pectoris.	Indian J.Physio.&Pharmaco.41(No.5) Suppl.	1997
42	Siddiqui, R.A.et. al.	Effect of Shilajit on Glycine Induced Hyperoxaluria.	Indian J.Physio&Pharmaco. 41(No.5) Suppl.	1997
43.	Singh, R.K. et. al.	Pharmacological actions of <i>Pongamia pinnata</i> in albino rats.	IndianJ.Exp.Bio., 35, 831-836	1997
44.	Vimala, R.et. al.	Anti inflammatory activity and anti-pyretic activity of <i>Michelia Champaka</i> L. (White Variety), <i>Ixora Brachiata</i> and <i>Rynchosia cana</i> Wild Flower extract.	Indian.J.Exp.Biol.No. 35:1310-14.	1997
45.	Singh, R.K et. al.	Pharmacological actions of. <i>Abies pindrow</i> leaf	IndianJ.Exp.Biol.,36,187-191	1998
46	Srivastava, S.et. al.	A comparative trial of <i>Inula racemosa</i> in interstitial lung diseases.	Indian J.Physio.&Pharmaco. 41(No.5), Suppl.	1997

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
F. literary & Miscellaneous				
47	Ali, M.	Definition of Nidana Panchaka (First Chapter of madhava Nidana).	B.I.I.H.M.,27(No.2)	1997
48.	Bikshapathin, T.	Andhariki Arogyam Ayurvedam (Health for all through Ayurveda).	Published by Gautam Publishers, Vijayawada, A.P.	Jan, 1998
49.	Chaudhari, R.M.	Editing work for the book. 'The Treatise on Indian Medicinal Plants	CSIR Vol V	1997
50.	Govinda Reddy, C.	Bibliography of the articles published in Bulletin of Indian Institute of History of Medicine.	B.I.I.H.M., 27(No.1)	1997
51.	Hussain, S.A & Bhatnagar, V.K.	A rare report of Nizam Ayurvedic Mobile Clinic.	B.I.I.H.M.,27(No.2)	1997
52.	Hussain, S.A.	Hakeem Ali Gilani-A commentator of canon of Avicenna.	B.I.I.H.M.,27(No.1)	1997
53.	Kumar. N.& Kumar,A.	Skin disease-Management with reference to Ranbir Prakash..II	B.I.I.H.M,26	1996
54.	Mishra,R	"Ayurved Ki Pragati" Swantrantra	Swantrantra Bharat ki Pachasvarsha. Vol.I	1998
55.	Mishra,R	Se Purva Avam Paschat. 'Ayurveda The science of Life.'	Justice B.P. Beri Felicitation	1998
56.	Narayana,A.	Todarmalla	B.I.I.H.M.,27(No.2)	1997
57.	Narayana,A.	A brief descriptive catalogue of Ayurvedic Palm leaves manuscripts procured and preserved in the Indian Institute of History of Medicine, Hyderabad	B.I.I.H.M.,(No.1)	1997

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
58.	Narayana, A.	Historical perspectives of the Twak Rogas (Kushta).	B.I.I.H.M., 27(No.1)	1997
59.	Subhaktha, P.K.J.P.	Arunadatta & Hemadri Scholiasts of Astanga Hridaya.	B.I.I.H.M., 27(No.1)	1997
60.	Uniyal, M.R.	<i>Ayurvedic Ausadhiyon Evam Jari-Butiyon Ke Patent Ke Sandarbha Mein Sujhava.</i>	Ayurvedic Mahasammelan Patrika	March, 1998
61.	Uniyal, M.R.	<i>Mauritius Mein Hindi Avam Ayurveda Ka Vikas.</i>	Sachitra Ayurveda.	June, 1997.

II. Participations in the field of Ayurveda & Allied Sciences:

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
A. Clinical and Basic Research			
1.	Acharya, M.V.	'Dysmenorrhoea-Folk Medicine of Goa.'	South Asian Countries Seminar on Medicinal Plants at Patna on 9th-12th Nov. 1997
2.	Acharya, M.V.	'Clinical study of V.F. Formula on Diabetes mellitus (Neerizhivu).	National Seminar on Diabetes mellitus (Neertizhivu) at CRI (Siddha), Chennai on 26-27 March, 1998.
3.	Acharya, M.V. & Bhattathiri, P.P.N.	'Clinical study of N.A. formula on <i>Madhumeha</i> .	-do-
4.	Babu, G.	'The clinical efficacy of the K.B.N. formula on Diabetes mellitus (Neerazhivu).	-do-
5.	Bhatia, D & Kishore, P.	Etiopathogenesis of Diabetes mellitus	-do-
6.	Bhima Rao, R <i>et al.</i>	Usefulness of Elavalukam (<i>Meolothris madarapatana</i>) in <i>Rheumatoid arthritis</i> .	49th I.P.C.A. Conference held at Trivandrum, 18-21/12/1997.
7.	Chaturvedi, D.D. <i>et al.</i>	'AIDS' in Ayurveda'.	Seminar on AIDS organised by Aarogya Niketan, Vasai, Dist. Thane on 10th Aug. 98.
8.	Devidas, K.V.	The incidence of Madhumeha in Patiala city Punjab and an appraisal of its occurrence based on Ayurvedic principles.	Seminar on 'Diabetes mellitus' held at C.R.I. (Siddha), Chennai on 26-27 March, 1998.
9.	Ghosh, S. <i>et al.</i>	Management of <i>Guda Rogas</i> (Ano-rectal diseases) in CRI(Ay), New Delhi	Paper presented for National Conference on Parasurgical measures an Indigenous Approach, held at Jaipur 13-15/12/1997.
10.	Goyal, H.R.	Status paper on Research in Ayurveda & Siddha in India.	World Congress for Integrating healing methods, held at Colombo (Sri Lanka). 27th Nov. to 4th Dec. 1997.

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
11.	Goyal,H.R.	Potentialities of Ayurveda.	7th World Congress on Holostic Life, Health and Aesthetics held at savona, Italy, 24-31/5/1997.
12.	Kishore,P	Co-Chairman-IIInd Scientific session of the National Conference.	National Conference on para-surgical Measures an indigenous approach held at Jaipur, Dec, 1997
13.	Kishore,P	Chairman, Ist Scientific session of the National Seminar on Diabetes mellitus (Neerazhivu)	Ist Scientific Session of the National Seminar on Diabetes mellitus (Neerazhivu) held at Chennai 26-27 March, 1998.
14.	Kishore, P	Studies on indigenous drugs on Neerazhivu (Diabetes mellitus).	National Seminar on Diabetes mellitus (Neerahivu) held at C.R.I (Siddha), Chennai. 26-27 March, 1998.
15.	Kusuma,K	'Clinical effect of A.G. formula in the management of <i>Diabetes</i> .	-do-
16.	Mishra, A.K.	Seminar Participation	International Conference on Stress adoption, Prophylaxis and Treatment held at Bose Institute, Calcutta, 10-12/1/1998.
17.	Mishra, A.K.	-do-	National Seminar on Proprietary Patent Ayurvedic Medicine-Nature Cure for the World held at Science city, Calcutta, 4-5/1/1998.
18.	Mishra, A.K.	-do-	National Seminar on Recent Advancements of Ayurveda held at Institute of Post-Graduate Ayurvedic Education & Research, Calcutta, 1997.
19.	Mishra, D.K. <i>et. al.</i>	<i>Kshara Sutra</i> in Pilonidal sinus	National Conference on Parasurgical measures an indigenous approach, Jaipur, 13-15/12/1997.

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
20.	Sharma, O.R.	Ojaksya & AIDS, Preventive measures. An Ayurvedic concept.	Workshop organised by Public Relation Deptt. Industrial Training Institute, Mandi (H.P.), 1997.
21.	Sharma, R.K. & Dave, K.J	A herbal compound for diabetes	Paper presented for Seminar on Neerazhivu (Diabetes mellitus), C.R.I., (Siddha), Chennai, 26-27 March, 1998.
22.	Swamy, G.K	'Clinical Evaluation of <i>Haridra Khanda</i> in the management of <i>Sitapitta</i> '.	Sastrajna Parishad National Seminar at Vijayawada on 9-11-1997.
23.	Swamy, G.K & Bhattathiri, P.P.N	<i>Pathyapathaya Vicharana</i> in the management of <i>Madhu meha</i> (Diabetes mellitus)	Paper presented at National Seminar on Diabetes mellitus (Neerazhivu) at C.R.I. (Siddha), Chennai on 26-27 March, 1998.
24.	Tripathi.K and	Hypertension in pregnancy	Jt. Annual Conference of Ass. of Physician of India API(East Zone Bihar Chapter 1998.
25.	Tripath. K.	Primary prevention of Diabetes mellitus in high risk children of diabetic mothers.	Seminar on Diabetes, C.R.I. (Siddha), Chennai 26-27 March, 1998.

B. Health Care Research & Ethno-Medicine

26.	Billore,K.V. <i>et. al.</i>	Some folk remedies from Rajasthan in the management of <i>Madhumeha</i> (Diabetes).	Seminar on Neerazhivu (Diabetes mellitus), C.R.I. (Siddha), Chenai, 26-27 March, 1998.
27.	Msihra, R <i>et al</i>	Some ethno-medicinal lores for Diabetes.	-do-

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
28	Narayana,A	Therapeutic Concepts-The Tribal folk of Andhra Pradesh (India)-Part-A	13th International Conference on Ethnomedicine held at Ludwin Maximiliawe University, Munchan, Germany, 6-8/3/1998.
29	Sharma, O.R.	Heath care and Role of medicinal herbs.	Workshop organised by Govt. Girls Sr. Sec. School, Mandi under N.S.S.Scheme, 1997.
30.	Singh, D.N.	<i>Sikkim Mein Vyadhiya Avum Upacar.</i>	C.W.C., Gangtok (Sikkim) 22-3-1998.
31.	Tewari R.N.	<i>Gaon Ke Aspas ki Vanas patiyon Se Swasthya Raksha.</i>	A.I.R., Gangtok 11-12-1998
32	Vasanth,S	Indian System of medicine	A Seminar on impact of Science and Technology on human health, Loyala College, Chennai, 13-18/3/1998.

88

C. Dravya-Guna,Medico-Botanical Survey&Cuitivation

33.	Billore,K.V.	"Indian mangrove"-upper west coast	Participation in Work Shop on Conservation Assessment and Management plan for Indian Mangrove Eco-System. National Institute of Oceanography, Goa., July, 1997. <i>Bull. Med. Ethn: bot. Res.</i> (in press)
34.	Billore, K.V. et.al.	Prospects of Ethno-botanical lores in birth control.	<i>Ethnobotany</i> (Accepted)
35.	Billore, K.V. et. al.	Some folk lores from the 'Lok Vaidyas' of Rajasthan in the Management of 'Tamak-Swas'.	C.P.R. Foundation. Chennai, 7/2/1998.
36.	Brindha.P.	Cultivation of Medicinal Plants, an invited lecture.	International Development Research Centre and Co-sponsored by W.W.F.(for Nature) India organised at New Delhi on 22-23 September. 1997.
37.	Hemadri.K.	'Attended a workshop on "Prioritization of Medicinal Plant for South Asia".	

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
38.	Majumdar, R.	Medicinal Plants of North Eastern Region of India	Workshop on Utilization Plantation and Conservation of Medicinal Plants organized by Biotech Fourm Deptt. of Biotechnology, Guwahati University as Resource person (sponsored by Min. of Environment and Forest, Govt. of India). 16-17 May'97 .
39.	Pathak, N.N.	Agriculture and preservation of medicinal plant	1st Reorientation Programme on Dravya Guna, held at B.H.U., 13/10/1997.
40.	Sharma, O.R.	Prevention of AIDS, Role of medicinal herbs.	Workshop organised by Himachal Mahila Mandal at Gandhi Bhawan, Mandi (H.P.), 1997.
41.	Singh D.N.	Seminar Participations	Regional Workshop on the Status of Rare, Threatened, Endangered and Important Medicinal herbs of Sikkim Himalayan Botanical Survey of India, Gangtok, 27-11-1997.
42.	Singh P.B.	Commercially important medicinal plant of Himachal Pradesh utilization & conservation.	International Conference on medicinal plants held at Bangalore, 16-19/2/1998.
43.	Uniyal, M.R.	Seminar Participation.	1st South Asian Countries Seminar on Medicinal Plants held at Patna. 9-12-/11/1997.
44.	Uniyal, M.R.	Training	International Workshop-cum-Training on Herbal Drugs under the Govt. of India-UNDP held at Regional Research Laboratory (C.S.I.R.), Jammu. 18-22/9/1997.
D. Pharmaceutical and Chemical Research			
45.	Bhat, A.V. <i>et al</i>	Controversial drugs	Seminar & Workshop on Medicinal Plants held at Regional Research Institute(Ay), Poojapura, Trivandrum. 8-9/5/1997.

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
46.	Bhat, A.V. & Padmaja.B.	<i>Terminalia arjuna</i> and its adulterant <i>Largestroemia speciosa</i> - A comparative pharmacognostic study.	Swadeshi Science Movement, Aryabhatteeya-98-A National Seminar held at Trivandrum 14-15/2/1998.
47.	Bhima Rao. R.	Bio-active Polyphenols.	Symposium held at Regional Engineering Tiruchirapalli, (T.N.), May, 1997.
48.	Nair, G.A.	Phytochemicals of the leaves of <i>Hyptis suaveolens</i> Poit.	Proceedings of the 10th Kerala Science congress, Page 324.1998.
49.	Pathak, N.N.	Identification of medicinal and aromatic drugs used as medicine	National Conference on Health and Development of herbs. held at Indira Gandhi Agriculture University, Raipur, 29-30/8/1997.
50.	Sasikala, E.	Pharmacognostic study on <i>Premna tomentosa</i> .	49th IPCA Conference held at Trivandrum, 18-21/12/1997.
51.	Sukumar. E & Bhima Rao, R.,	Phytochemical research & development of indigenous medicines.	National Seminar on the Relevance of Advanced Chemical Research in Independent India, Bharthidash University, Trichy, Feb. 1998.
52.	Thenmozhi, K. et al.	Further contribution to the foliar Pharmacognosy of <i>Gynemajlvestre</i> R.Br.	XVII All India Conference of I.P.G.A., 13-14/9/1997.
53.	Vasanth, S.	Phytoconstituents and antimicrobial activity	National Seminar on Integrated management of plant resources, Danielson College, Chhindwara (M.P.) 23-24/1/1998.
E. Pharmacology			
54.	Santosh. Kumar, et al.	Effect of <i>Bhringaraja</i> on hypercholesterolemia - An experimental study.	IIInd National Conference & Workshop on Ethnopharmacology, Mysore, Oct. 1997.
55.	Susan, T. et al.	Anti-inflammatory activity of International <i>Gorojana</i> .	Symposium on Bio-Industry, AVVM Sri Puspam College, Poondi. Tanjore, Jan. 1998.

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
56.	Alam. M.M. <i>et. al.</i>	Effect of <i>Abhyanga</i> on blood Glucose Level-A report	National seminar on Diabetes mellitus (Neerazhivu), C.R.I. (Siddha) Chennai, 26-27 March, 1998.
57.	Chatterjee, A. <i>et. al.</i>	Reversible antifertility effect of Piper betel Linn. on male mice.	17th National symposium on Organic Chemistry, Science City, Calcutta, 23-25/9/1997.
58.	Mandal, S. <i>et. al.</i>	Isolation and Pharmacological evaluation of Xanthenes from <i>Swertia chirata</i> Buch. Ham.	Proc. of 85th Indian Science Congress (Post Session), New Delhi. 1998.
59.	Vasanth, S.	The hepatoprotective effect of 5,6,4-trihydroxy-7,3-dimethoxy flavone from <i>Pentanewa indicum</i> :	49th I.P.C.A. Conference held at Trivandrum, 18-21/12/1997.

88

F. Family Welfare

60.	Ali, M. <i>et. al.</i>	Photographic Depiction of Sir Ronald Ross life History	IIInd Global meet on Parasitic diseases, Hyderabad, 18-22/8/97
61.	Chaturvedi, D.D. <i>et. al.</i>	"A decade of R.R.A. Podar CRI (AY) Mumbai	At Conference "Update Ayurveda, 98" evidence based Ayurveda Res. Centre. KEM Hospital, Mumbai on 12th Feb.'98.
62.	Jega Jothi Pandian, S. <i>et. al.</i>	Antidiabetic drug profile-A literary survey.	National Seminar on Neerazhivu, C.R.I. (Siddha), Chennai, 26-27/3/1998. Broadcasted on 01.10.1997.
63.	Maity, S.K.	<i>Ajeerna</i> (A talk for AIR: Calcutta)	
64.	Meenakshi SundaraMoorthy, K. <i>et. al.</i>	Diabetic problem-A new approach in ancient literary survey.	National seminar on Neerizhivu held at C.R.I. (Siddha). Chennai, 26-27/3/1998.

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of participation
65.	Narayana, A	Posters on history of Medicine	85th Session on Indian Science Congress, Osmania Univ. Hyderabad. 3-7/1/1998.
66.	Upadhyay, L & Tripathi, K	Antidiuretic property of insulin on liquid membrane.	National Symposium on Recent Trends in Membrane Transport, B.H.U. Varanasi, March, 19-20-1998.
67.	Narayana, A	Ayurveda, the Naturistic medicine in ancient Indian culture.	7th World Congress on Holistic Life, Health and Aesthetics Savona, Italy, 24-31/5/1997.
68.	Pathak, N.N	<i>Paryavarniya Pradushana Ke Rokatham Mein Ayurveda Ka Yogadan</i>	National Conference on Health and Development of herbs, held at Indira Gandhi Agriculture University, Raipur, 29-30/8/1997.
69.	Singh, D.N.	<i>Ritu Chakra Aur Hamara Swasthya</i>	(A talk for A.I.R., Gangtok. 14-11-1997).

TECHNICAL REPORT SIDDHA

Abbreviations used for Institutes/Centres/Units

S.No.	Year of Estt	Name	Abbreviation
1.	1970	Central Research Institue, Chennai	CRISC
2.	1997	Regional Research Institute, Pondicherry	RRISP
3.	1979	Mobile Clinical Research Unit, Chennai	MCRUSC
4.	1980	Clinical Research Unit Palayamkottai	CRUSP
5.	1981	Clinical Research Unit New Delhi	CRUSND
6.	1986	Clinical Research Unit Trivandrum	CRUST
7.	1979	Drug Research Scheme (MD), Chennai	DRS (MD) C
8.	1979	Drug Standardization Research Unit, Chennai	DSRUSC
9.	1982	Drug Standardization Research Unit, Bangalore	DSRUSB
10.	1981	Drug Standardization Research Unit, Trivandrum	DSRUST
11.	1971	Survey of Medicinal Plants Unit, Palayamkottai.	SMPUSP
12.	1979	Literary Research and Documentation Departments Chennai.	LR&DDSC
13.	1986	Tribal health Care Research Project, Tirupathur NAA.Dt.	THCRPST
14.	1986	Tribal health Care Research Project, Kalasa.	THCRPSK

CLINICAL RESEARCH PROGRAMME

The Clinical Research Programme in Siddha Medicine is being carried out on selected clinical conditions by the Institutes/Units of Siddha Medicine functioning under the Council. During the reporting year the clinical conditions like Kalanjagapadai (Psoriasis), Putrunoi (Cancer), Gunmam (Intestinal disorders), Manjal Kamalai (Infective hepatitis), Sandhu Vathasoolai (Rheumatoid arthritis), Velluppunoi (Anaemia), Venkuttam (Leucoderma) etc. were studied.

KALANJAGA PADAI (PSORIASIS)

Kalanjaga-Padai has been taken up for study by the Central Research Institute, Chennai. The coded drug "777" oil was administered at the dose of 10 ml. with milk, two times a day, to all the cases selected for trial. The patients were also advised to apply the oil externally on the affected parts of the body. The results of the treatment are as under:

Results of Clinical/therapeutic Trial of 777 oil on Kalanjaga Padai (Psoriasis)

S.No.	Drug	Total cases	Results of the trial			LAMA
			Comp. relief	Marked relief	Moder. relief	
1.	777 oil	151	6	64	69	12

VATHASOOLAI

This disease condition has been described in the Siddha texts under "VATHAROGANGAL". The study to evaluate the efficacy of Chendamarutham and Vatha Kesari Thailam in the cases of Vathasoolai has been taken up by the Regional Research Institute, Pondicherry. The trial drugs Chendamarutham at the dose of 200 mg. alongwith honey was administered in two divided doses. Vatha Kesari Thailam was advised to apply externally on the affected parts. Sixty one (61) cases were taken up for study during the reporting year. Out of the 61 cases, 18 got complete relief,

28 cases got marked relief and 15 cases did not respond to the treatment.

SARUMANOIGAL (Skin disorders)

The study on this clinical condition was carried out at the Clinical Research Unit, Trivandrum. The efficacy of the drugs, Irunellikarpam and Gandhaka Rasayanam was studied in two groups of patients at doses of 130 mg. and 2 gm. respectively, two times a day. The third group received combination of both the drugs. All the selected cases received Karappan Thailam or Arugampul Thailam for external application. The results of the treatment is given in the following table.

Results of Clinical/Therapeutic Trial of Siddha on Sarumanoigal (Skin disorders)

S.No.	Drugs	Total cases	Complete relief	Results of the trial Marked relief	Mod. relief	LAMA
1.	Irunelli Karpam (130 MG. BD) karappan thailam (External application)	11	7	3	1	-
2.	Gandhaka Rasayana (2g BD) Arugampul thailam External application	20	11	7	-	2
3.	Combination of S. No. 1 & 2	25	16	7	-	2
Total		56	34	17	1	4

YANAICKAL NOI (FILARIASIS)

The effect of Linga Chendooram, Thalampoo Mathirai nilavembu Kudineer and Kakkattanver Karkam and their combinations were studied on the clinical condition Yanaikkal noi at the Clinical Research Unit, Trivandrum. The study was carried out in three groups, in both carrier and manifested cases of Yanaikal noi at OPD level. 160 cases were studied during the reporting year. The following table shows the results of the study.

Results of Clinical/therapeutic Trial of Siddha Preparations on Uanaikalnoi (Filariasis)

S.No.	Drugs	Total cases	Results of the trial			LAMA
			Complete relief	Marked relief	Mod. relief	
A.	Linga Chendooram	86	43	28	-	15
B.	Thalampoo Mathirai & Nilavembu Kudineer	91	43	29	-	19
C.	Kakkattan Ver Karkam	87	43	31	-	13
Total		264	129	88	-	87

SANDHU VATHA SOOLAI (Rheumtoid arthritis)

Sandhu vatha soolai is described as one of the 80 Vatharogangal in the Siddha classical literature. A study to evaluate the effect of Venga chunnam in the management of Sandhu vatha soolai has been taken up at CRI, Chennai. The drug was administered at the dose of 200 mg. twice a day alongwith honey. Tamarind and chilli free diet with less salt was advised to all the 59 cases selected for the trial. Out of 59 cases 5 cases showed complete relief 26 cases showed marked relief, 19 moderate relief and remaining 9 cases did not respond to the treatment.

MANJAL KAMALAI (Infective hepatitis)

The study on this clinical condition has been carried out at the Central Research Institute, Chennai. The trial drug Athimathura choornam was administered at the dose level of 1 gm. in two divided doses alongwith water. 13 cases were selected for the trial during the reporting year. Out of the 13 cases, 4 showed complete relief, 1 case showed moderate relief and remaining did not respond to the treatment.

GUNMAM (intestinal disorders)

The study on efficacy of Siddha drugs in above condition was undertaken at the Regional Research Institute, Pondicherry and clinical Research Unit, Trivandrum and Palayamkottai. The trial drugs Uppu Chendooram, Gunmagudori Mezhugu and Kavikal Choornam were taken up for the study. Out of the 5 cases selected for the trial 1 case got complete relief and the remaining cases showed no response.

VALI GUNMAM (Peptic Uicer)

The disease condition is one of the eight varieties of the GUNMAROGANGAL found in the Siddha texts. The Central Research Institute, Chennai has taken up clinical trial on this disease condition to determine the effectiveness of Suyamagni Chendooram. The patients suffering with severe pain in the epigastric region, nausea, vomiting with both eruption and haematemesis etc., were selected for the trial. The diagnosis was further confirmed on modern parameters such as FTM, Barium meal X-ray etc. The trial drug administered at the dose of 200 mg. filled in the gelatine capsules twice a day for five days. Omam bath and gengeli oil bath have been advised on 6th and 7th day. This course was repeated for two more times. Twenty one cases were taken up for study during reporting period. Out of the 21 cases 15 cases showed marked relief 4 cases moderate relief and 2 cases were discharged on medical advice.

VELLUPPU NOI (Anaemia)

Clinical studies were conducted in 26 cases of Velluppu Noi at Regional Research Institute, Pondicherry to determine the effectiveness of the drug Aya Bringaraja Karpam. The drug at the dose of 260 mg. Three times a day along with honey was administered for three weeks. Out of 23 cases taken up for trial 18 cases showed marked relief and rest of the 5 cases did not respond to the treatment.

PUTRU NOI (Cancer)

This disease condition has been described in the Siddha texts under the head "Verananoigal". The study was undertaken in Central Research Institute, Chennai. The coded drugs RGX, VK2 and SKY, formulated by the Institute were taken up for the trial. The drugs at the dose of 250 mg. each filled in gelatine capsules were administered, twice daily along with milk. Ulcers and Tumors were dressed with Nithiyakalayani Kalkam and Pachaiennai with Thurusu. It is noted that all the cases showed considerable reduction in the size/growth of ulcer/tumors, reduction/or arrest of the discharge and also reduction of pain. Eight cases were studied during the reporting year. Out of which two cases showed mild relief and six cases were discharged at request.

NEERAZHIVU (Diabetes mellitus)

Neerazhivu is one of the "Seruneernoigal" described in Siddha literature. The study in this clinical condition was taken up by Clinical Research Unit, New Delhi and clinical wing of Drug Research Scheme (MD), Chennai. The trial drugs Abraga Chendooram and Keezhanelli Choornam were taken up

in the management of Neerzhivu. The results of the treatment are tabled below:

Results of Clinical/therapeutic Trial of Siddha Preparations on Neerzhivu (Diabetes Mellitus)

S.No.	Drugs	Total cases	Results of the trial			
			Complete relief	Marked relief	Mod. relief	LAMA
1.	Abraga Chendooram 200RAM (200mg. BD)	6	-	2	2	2
2.	Keezhaneli Chooram (500mg.BD)	20	-	1	9	10
Total		26	-	3	11	12

VELLAI NOI (Leucorrhoea)

Vellai Noi is one of the magalir noigal described in Siddha texts. The drugs Chemparuthipoo kudineer, Kukkil Parpam were taken up for trial, at Clinical Research Unit, Trivandrum. 25 cases were studied during the reporting year. Out of the 25 cases 15 showed complete relief, 6 showed marked relief and 4 cases did not respond to the treatment.

ERAIPPU NOI (Bronchial Asthma)

Eraippu Noi is one of the respiratory diseases described in Siddha Literature. The efficacy of the drugs IrunelliKarpam, Swasakudori Mathirai were studied at the Clinical Research Unit, Trivandrum. 38 cases of Eraippu Noi. were selected for trial during the period. Out of 38 cases, 24 cases showed complete relief; 12 cases marked relief and 2 cases did not respond to the treatment.

VENKUTTAM (Leucoderma)

Venkuttam is one of the eighteen varieties of kutta Noigal described in Siddha texts under skin diseases. The efficacy of the drugs Karunthaulasicharil Pathapaduthappata Parangi pattai chooram, Poonimilai, Chenduram and Chirattai Thailam (External use) were studied the Clinical Wing of Drug Research Scheme (MD), Chennai.

The details of the results of the treatment are tabled below. The study revealed that the trial drugs did not show any toxic/side effects even on prolonged administration.

**Results of Clinical Therapeutic Trial of Siddha Preparations
on Venkuttam (Leucoderma):**

S.No.	Drugs	Total cases	Results of the trial			
			Complete relief	Marked relief	Mod. relief	LAMA
1.	Parangi Pattai Chooram	3	-	-	2	1
2.	Ponnimilai Chendooram Chirattai Thailam	11	-	-	2	9
Total		14	-	-	4	10

Out Patients/In Patients Attendance at a Glance

S.No.	Instt./ Units	No. of patients attended OPD			No. of patients attended IPD
		New	Old	Total	
1.	CRI, Chennai	7951	12539 ^m	20,490	252
2.	RRI, Pondicherry	4044	926	15,970	86
3.	CRU, Palayamkottai	482	5125	5,607	
4.	CRU, New Delhi	91	98	169	
5.	CRU, Trivandrum	5069	5768	10,837	
Total		17,637	35,456	53,091	338

HEALTH CARE RESEARCH PROGRAMME

Health care Research Programme has been carried out by the Mobile Clinical Research Units attached with Central Research Institute, Chennai and Regional Research Institute, Pondicherry and also two Tribal Health Care Research Programmes at Kalasa, (Karnataka) and Tirupathur (Tamilnadu)

TRIBAL HEALTH CARE RESEARCH PROGRAMME THCRPST

The team conducted periodical study tours in the 10 tribal pockets such as Nachamali, Vazhakkadu, Motlapattu, Vazhallavur, Kalyanamandi, Narthamarathur, Chinnamuttai, Thimirimarathur, Thoppur, Nallapattu and also nearby villages of Tirupathur Block. The team conducted 28 trips and covered 26,000 individuals from the total population. 2669 patients were provided incidental medical aid for the treatment of Eriguniman, Itaippunoi, Kudarpuzhunoi, Neerkkovai, Moolam, Palnoigal, Sirangu, Peenasam, Soothaganoi etc. 23 villages were covered under Community Health Programme and health statistic were collected from 24,460 individuals.

THCRPSK

The team conducted 28 visits and about 21,552 individuals were covered and health statistics were recorded. 975 cases were provided incidental medical aid. Erapippunoi, erumal, Gunmam, Valigunmam, Karappan, Keelavayu Suram oothalnoi, Peenasam etc. were found common in the area.

MOBILE CLINICAL RESEARCH PROGRAMME MCRUSC

The team conducted 90 visits to the village patients during the reporting year and collected information on 3,000 individuals, Incidental medical aid were provided to 2,581 patients. It was also noted that most of the villagers were suffering from one or more diseases. Irumal, Eraippunoi, Vaeruvai, Vellai, Muttuvali, Thalivali, Surangoigai, Tholnoigal, Pun, Naalpattpun etc. were commonly found in the areas covered under the study. Out of 2581 cases reported treated during visits 400 cases are new and 2181 cases are old cases.

MEDICO-BOTANICAL RESEARCH PROGRAMME

Medico-Botanical Survey Unit functioning at Govt. Siddha Medical college, Palayamkottai was established in the year 1971. During the past two and half decades the unit is engaged in exploring the availability of medicinal plants especially used in Siddha Medicine in the forest areas of Tamil Nadu. The study on identification, quantitative and qualitative availability of the genuine drugs, their substitute/adulterants etc. are also being taken up.

It is a wellknown fact that 'Drug' (Maunthu) is the primary tool of entire Research Programme. Survey of forest areas for procuring drugs and arranging the supply of required materials for Research purposes occupies an important place.

During the reporting year, the survey unit conducted 9 tours in and around Nellai forest areas for collecting the medicinal plants for supply to other units. 164 specimens belonging to 74 families, 172 genera and 181 species were collected and reported.

Out of 206 specimens collected and 127 specimens were added to the herbarium. Some of the important plants of Siddha medicine are Pullani *Calycopteris floribunda* (Roxb.) Lamk, Sennelli *Phyllanthus urinaria* L., Narayanasanjeevii *Begonia malabarica* Lam, Ottanali *Leea indica* Meer., Alempanai *Arenga wightii* Griff., Masagani *Ixora nigricans* R. Br., Azhinjil *Alangium salvifolium* Wab. Madanpanai *Cycas circinalis* L., Puzhi *Tamarindus indica* L., Ponkorandi *Salacia oblonga* Wall., Nilasedachi *Polycarpaea corymbosa* Lam., Malilai *Vitex altissima* L., Kazha *Carissa carandas* L., Vakkamai *Diospyros montana* Roxb., Silavagai *Albizia odoratissima* Benth., Manudakkunthu *Cadaba trifoliata* Wt. & Arn., Kurukkaththi *Hiptage benghalensis*, Virali *Dodonaea viscosa*, Sirukumiz *Gmelina asiatica* L., Vishnuki *Evolvulus alsinoides*, Kannichi *Tragia involucrata*, Thetri *Ixora ciccubea*, Myladi *Vitex oubbata*, Karuvilanjukoodam *Smilax zeylanica*, Chenthatti, *Tragia involucrata*, Moohkil *Bambusa arundinacea*, Machipatri *Artemesia parviflora* Buch-Ham, Iruvi *Dryopteris filix-mas* Scht, Aryvadha *Ruta Chalepensis*, Ammaikodi *Asparagus racemosus*, Sirunarivengayam *Scilla hyainthina*, Odayan *Cleistanthus collinus*, Pulluruvi *Micrargeia Wightii*, Kilukiluppi *Crotalaria retusa*, Talikkeerai *Ipomoea sepiaria* Koen,

Nilachadaichi *Striga asiatica*. Poochameesai *Orthosiphon aristatus*, Arokkipathcai *Trichopus zeylanicus*, Malaivempu *Melia composite*, Parani *Selginella inaquefolia*, Kalvazhai *conna*, Aranai *Alstonia venenata*, Kundalampalai *Tabernaemontana heyneana*, Kattukarunai *Arisaema*, Charapaththiri *Knema attenuata*. Bilimbi *Averrhoa carambola*, Pirambu Calamus rotang, Kattumilagu Piper trioicum, Mookurinji *Naravilea zelanica*, Kattumalli *Jasminum*, Ponmusuttai *Cissampelos pareira*, Perrathai *Alpinia galanga Willd.*

19 different parts of the plants were collected and added to the museum the total raising to 761 drugs samples.

33 folk-medical claim were collected during the survey from Kantitribes of Parpanasam hills for jaundice, arthritis, contraceptives, tooth-ache, cuts and wounds, snake bite, skin disorders, piles, boils and glandulos wellings etc.

58.05 kg. of plant parts were collected and supplied to Councils Institutes/units. The unit has also participated in the Mistque India 1997, New Delhi held in the month of October 1997 and Silver Jubilee Celebrations of CRI (S) held in Chennai during March, 1998. Exhibited rare and extint plants pertained to Siddha Medicine in the exhibition organised during the above functions.

PHARMACOGNOSY RESEARCH PROGRAMME

The Pharmacognosy Research Programme is being undertaken at Pharmacognosy Research Wing functioning in DRS (MD), Chennai. During the reporting year pharmacognostic study on the drug Sivakarandai (*Sphaeranthu amaranthoides*) was reported

The study includes medicinal uses of the drug, its distribution, qualitative availability and description beside macro and microscopical characters, physico-chemical constants and phyto-chemical screening for the presence of active principles.

PHARMACOLOGY RESEARCH PROGRAMME

The Pharmacology Research Programme has been carried out by the Pharmacology Section of the Central Research Institute, Chennai and Pharmacology wing of drug Research Scheme (MD), Chennai. The study has been conducted on the pre-determined experimental models in the laboratory attached to the Institute. The following single/compound drugs are studied for their efficacy and also to determine their effect as anti-inflammatory, antitoxic and analgesic.

1. Annabedi Chendooram
2. Thazhambu Mathirai
3. Athimathura churanam
4. Nagaparpam
5. Vanga chunnam
6. Veppam vithu churanam
7. Chundai vatral churnam
8. Vathakesari Thailam
9. Thalaga Mathirai
10. Idivallathi Mezhugu
11. An anti-Diabetic Siddha drug
12. Sivanar Amirtham.

1. ACUTE TOXICITY STUDY:

Acute toxicity study with the drug *Annabedi chendooram* showed toxic effects 83.33% and 33.33% mortality in the doses of 10,000 and 8,000 mg. per kg. body weight respectively on albino rats respectively. Thazhambu Mathirai manifested 16.66%, 33.33% and 66.66% mortality in the doses of 2,000, 3,000 and 5,000, 10,000 mg/kg. body weight respectively on albino mice. *Athimathuram* (*Glycyrrhiza glabra* Linn) in the dose upto 10,000 mg. per kg. on albino mice *vangachunnam* in the doses upto 10,000 mg per kg. on albino rat, *veppam vithu choornam* upto the dose level of 5,000 mg. per

kg. on albino mice and rats, *Vatha kesari thailam* upto the dose level of 20 ml. per kg. body weight on albino rats, *Thalaga mathirai* and *Idivallathi Mazhugu* upto the dose level of 5,000 mg. per kg. body weight on albino rats and anti diabetic Siddha drug in traditional practice upto the dose level of 5,000 mg per kg. body weight on albino rats found to be non toxic. The drugs *Naga parpam* and *Pavala parpam* in the doses of 10,000 mg. per kg. and 6,000 mg. per kg. manifested 50% and 33.33% mortality respectively.

2. ANTI-INFLAMMATORY STUDY

Carrageenin induced paw odemma study with the drugs *Athimathuram* (*Clycyrrhiza Glabra*) in the dose level of 500 mg. per kg. *Nagaparpam* in the dose level of 500 mg. per kg. *Veppam vithu choornam* in the dose level of 50, 500 and 5,000 mg. per kg. Cotton pellet granuloma study with the drug *Sivanaramirtham* in the dose level of 50 mg. per kg body weight and Formalin induced arthritis study with the drug *Veppam vithu choornam* in the dose level of 50 mg. per kg. were carried out. The data are to be analysed statistically and the results will be communicated in due course of time.

PHARMACEUTICAL/STANDARDIZATION RESEARCH PROGRAMME

The drug standardization plays an important role for obtaining authentic medicinal preparations and genuine single drugs for the therapeutic efficacy. It also occupies important place in both drug and applied clinical research because this provides approach data for obtaining genuine single drugs and authentically prepared compound medicines. The standardization work, has been taken up to study Siddha Formularly (Part-I) alongwith the single durgs entering into those formulations. The study was entrusted with Drug Standardization Research Unit at CSMDRIA, Chennai; 2. Drug Standardization Research Unit at RRI (DR), Trivandrum; 3) Drug Standardization Research Unit at RRC (Ay.) Bangalore.

The Programme aims at the study of single drugs, Pharmaceutical process involved in the manufacture of the formulations and finished products including laying down their analytical standards:

A. List of single drugs on which phyto-chemical studies have been done (Analytical studies):

S.No.	Name of the drugs	Parts Analysed	Name of the Instt./Units
1.	Ponnankanni <i>Alternanthera triandra</i> Lamk	Whole plant	DSRUSC
2.	Vellarugu <i>Enicostemma littorale</i> Reynal	Whole plant	-do-
3.	Sirupadai <i>Coldenia procumbens</i> L.	whole plant	-do-
4.	Peramutti ver <i>Sida acuta</i> Burm F.	root	-do-
5.	Iruvi <i>Dryopteris filis mas</i> Schott	rhizome	-do-
6.	Meddy keerai <i>Asystasia gangetica</i>	whole plant	-do-

S.No.	Name of the drugs	Parts Analysed	Name of the Instt./Units
7.	Mavilankam <i>Crateva magna</i> DC	Bark	DSRUST
8.	Atividayam <i>Aconitum heterophyllum</i> Wall	Rhizome	-do
9.	Kattu elumichi <i>Atalantia monophylla</i> Corr.	Leaves	-do-
10.	Isangu <i>Azima tetracantha</i> Lam.	Leaves	-do-
11.	Kattathi <i>Bauhinia malabarica</i> Rox.	Stem bark	-do-
12.	Maramnjai <i>Cosciniun fenestratum</i> colebr	Stem	-do-
13.	Akasatamarai <i>Pistia stratiotes</i> Linn.	whole plant	-do-
14.	Poovankuruntal <i>Vernonia comerea</i> Less	-do-	-do-
15.	Iruvatshi <i>Jasminum sambac</i>	stem	DSRUS B
16.	Orilalthamarai <i>Hybanthus enneaspermus</i>	whole plant	-do-
17.	Palasu <i>Butea monosperma</i>	Seeds	-do-
18.	Vayuvudanga <i>Embelia ribes</i>	Seeds	-do-
19.	Kattamanakku <i>Ricinus communis</i>	Seeds	-do-
20.	Akkrottu <i>Juglans regia</i>	Seeds	-do-

B. Pharmacognosy

1.	Karpuravalli <i>Coleus amboinicus</i> Lour		DSRUSC
2.	Vellipparuthi <i>Pergularia extensa</i> R. Br.		-do-
3.	Iruvi <i>Dryopteris filis mas schott</i>		-do-

S.No.	Name of the drugs	Parts Analysed	Name of the Instt./Units
4.	Atutintapallia <i>Aristolochia bracteolata</i> Lamk		DSRUST
5.	Ponnankanni <i>Alternanthera triandra</i> Lamk		-do-
6.	Mavilankam <i>Crateva manga</i> DC		-do-
7.	Sirupadai <i>Coldenia procumbens</i> L.		-do-
8.	Arival mookku pachilai <i>Sida acuta</i> Burm. f.		-do-
9.	Sirupadai <i>Coldenia procumbens</i> L.		-do-
10.	Ponnankanni <i>Alternanthera triandra</i> Lamk		-do-
11.	Anathazhai <i>Pandanus toctorius</i> soland exparkinson		-do-
12.	Nochi <i>Vitex nigundo</i> L.		-do-
13.	Peyamerutti <i>Anisomeles malabarica</i> L.		-do-
14.	Uthamani <i>Pergularia daemia</i> (Forsk) Chiou		-do-
15.	Kattamanakku <i>Jatropha Curcas</i>		DSRUS B
16.	Ponthaggarai <i>Cassia occidentalis</i>		-do-
17.	Nelavaggi <i>Cassia Tora</i>		-do-
18.	Ilatalarai <i>Plumeria acutifolia</i>		-do-
19.	Ilaikalli <i>Euhorbia nivulia</i>		-d0-

S.No.	Name of the drugs	Parts Analysed	Name of the Instt./Units
-------	-------------------	----------------	--------------------------

C. Phytochemistry

1.	Kattamanakku <i>Jatropha curcas</i> L.		DSRUSC
2.	Cirupellai (Substitute) <i>Nothosaru brachiata</i> Wight		-do-
3.	Cirutekku <i>Clerodendrum serratum</i> (L) Moon		-do-

D. PHARMACOPIEAL STANDARDS (ANALYTICAL STUDIES) OF FINISHED PRODUCTS

1.	Kunkiliya parpam		-do-
2.	Annabeti centuram		-do-
3.	Veti Annabeti centuram		-do-
4.	Tripala curanam		-do-
5.	Trikatuku curanam		-do-
6.	Cuvacak kutori Mathirai		-do-
7.	Noccit Thailam		-do-
8.	Maha elatic kulikai		-do-

PHARMACY

The pharmacy attached to Central Research Institute (Siddha) Chennai engaged in the preparation of classical preparations found in the Siddha Literature and also chosen trial drugs for the Institutes/Units of Siddha Medicine under the Council.

The raw drug requirement of the Pharmacy is met through the medico-ethno-botanical survey projects and also from the local markets. The drugs are identified by the experts in the field of pharmacognosy and Siddha medicine to determine its genuineness/authenticity.

The method of preparation of the medicines are based on the Literature of preparation of the medicines are based required for research and general use are being prepared in the pharmacy. Various types of medicines prepared in the pharmacy are chendooram, Chooranam, thailam, Nei, Parpam, Ennai, Kalkam etc. During the reporting period 675 kg. of chendooram, chooranamm, Parpam etc. and 606.7 litres of oil based drugs were prepared.

The pharmacy also supplied prepared medicines to the following Institutes/Units of Siddha functioning under the Council.

1. CRU, Trivandrum
2. CRU, Palayamkottai
3. DRS (MD), Chennai
4. MCRU, Chennai

LITERARY RESEARCH PROGRAMME

Literary Research Programme has been carried out by the Literary Research and Documentation Deptt. Chennai. The work carried out during the reporting year are as given under:

- 'Abstracts of Seminar on Neerazhivu' (Diabetes Mellitus): The booklet was printed during the year. This is a booklet consist of the abstracts papers presented during the seminar on Neerazhivu (Diabetes Mellitus) held on 26th and 27th March, 1998.
- 'Activities and Achievements of CRIS'; the book was printed during the year. The book elaborately describes the achievements and activities of the Central Research Institute, Siddha. The book was released on 26th March, 1998 on the occasion of Silver Jubilee Celebration of Central Research Institute Siddha.
- 'Konganar Muddal Kandam-1000': The printing work is in progress. The book is dealing with fundamental principles and some very important prescriptions for disease like leprosy, tuberculosis and skin disorders and jaundice etc.
- 'Aggathiyar pooranam-205': The book was printed during the year. The book is an original work dealing with method of some compound preparations using mercury, sulphur, scrankottai etc. and also deals with fundamental principles of Siddha Medicine.
- 'Agathiyar Vaidhya Kaviyam 1,500' and 'Agathiyar Sowmiya Sagaram-1200': Indexing, classification and editing work has been completed and press copies are being prepared.
- The unit has sold Council's publications for Rs. 4,502/- during the reporting year.
- Descriptive catalogue of Siddha Medicine: The work is in progress. Collected and documented 100 datas so far.
- Siddha Kayakarpam (IInd edition): Indexing, classification were completed. Editing work is in progress.

LITERARY WORK CARRIED OUT AT HQRS.

The council, for the first time, is bringing out an English edition of a hand book of prescriptions entitled 'Kudingeergal' (Decoctions) based on the original text 'Theriyar Kudineer' published by the Council in the year 1975. The work consists of 100 stanzas and describes very simple preparations used as effective remedies in the clinical conditions like constipation, cough, diarrhoea, fever, gastro-intestinal disorders, giddiness, hernia, hydrocele, hiccough, obesity, respiratory disorders, retention of urine, diabetes, vomiting, unconsciousness etc. Different varieties of 'Kudineergal' which have been classified broadly under sixty one heads in this book though their actual number in the original text is much higher.

I. Publication & Participations in the fields of Siddha Medicine

A. Publicaion

S.No.	Name of the Author(s)	Title of the paper	Name of the Journal	Date of Publication
1.	Saraswathy, A. <i>et. al.</i>	Chemical composition of <i>Padikaraparam</i> .	Ancient Sceince of Life, Vol. XVI (No. 4) 293-97.	1997
2.	Saraswathy, A.	Chemistry and anti-inflammatory activity of <i>Jatropha glandulifera</i> .	Chemistry and Biology of Herbal Medicine., 21-26.	1997
3.	Saraswathy, A. <i>et.al.</i>	Chemistry and Biography of <i>Parmelia caperata</i> .	Chemistry & Biology of Herbal Medicine., 67-70.	1997
4.	Saraswathy, A <i>et. al.</i>	Chemical examination of <i>Ficus retusa</i> L.	B.M.E.B.R., Vol. XVII (No. 1-2). 72-75.	1996
5.	Saraswathy, A & Susan. T	Chemical analysis of <i>Pancati-pakkinic Curanam</i> .	J.R.A.S., Vol. XVI (No. 1-2). 82-85	1995
6.	Saraswathy, A. <i>et. al.</i>	Chemical analysis of <i>Maka Vallati ilekiyam</i>	J.R.A.S., Vol. XVI (No. 1-2). 86-91	1995
7.	Sasikala, E. <i>et. al.</i>	On the Pharmacognosy of <i>Clerodendrum inerme</i> (L.) Gaertn. Leaves.	B.M.E.B.R., Vol. XVI (No. 1-2). 44-53	1995

II. Participations

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of Participation
1.	Anandan, T	<i>Makkal maruthuvam</i>	Hand book for health Workers Published by CRHSE, Tirupattur.
2.	Anandan, T	Concept on Diabetic diet.	Seminar on Neerazhivu (Diabetes mellituss) C.R.I. Siddha, Chennai, 26-27 March '98.
3.	Masilamani. G. <i>et. al.</i>	Clinical study on Neerazhivu (Diabetes millitus) -A comparative study.	-do-
4.	Narayanan, N <i>et. al.</i>	Contribution to the identity of <i>Cirutekku</i> , a contorversial plant-drug of Siddha medicine.	National Seminar on the relevance of advanced chemical research in independent India, Bharathidash University, Trichy, Feb., 98
5.	Ravishankar. V.	Clinical evaluation of Herbal and Herbo-mineral combination in the management of <i>Neerazhivu</i> (Diabetes mellitus)	Seminar on Neerazhivu (Diabetes mellitus) and Silver Jubilee of C.R.I. (Siddha), Chennai held on 26-27 March, 1998
6.	Saraswathy, A.	Ployphenols from <i>Plumbago rosea</i> L.	National Chemistry Symposium on Bio-active polyphenols held at Regional Engineering College. Tiruchirapalli, May, 1997.
7.	Saraswathy, A.	Recent Research on Medicinal Plants.	Central Leather Res. Instt., Chennai. 6-7 June, 1997.
8.	Saraswathy, A.	Phytochemical investigation of <i>Plumbago rosea</i> L.	49th Indian Pharmaceutical Congress Association Conference held at Trivandrum, 18-21/12/ 1997.

S.No.	Name of the Authors(s)	Title of the Paper	Name of the Conference/Seminar/ Workshop and Date of Participation
9.	Saraswathy, A.	Chemical analysis of <i>Maka elatik Kulikai</i> . a known Siddha, remedy for Nirazhivu (Diabetes mell)	Seminar on Neerazhivu (Diabetes mellitus) and Silver Jubilee Celebration of C.R.I. (Siddha), Chennai March. 1998
10.	Saraswathy, A. and Susan. T.	Analysis of <i>Noccit Tailam</i>	XVII All India Conference of Pharmacy Graduates Association. Madurai. Sept. 97.
11.	Saraswathy.A. et. al.	Carpachromene from <i>Atlantia monophylla</i> .	National Chemistry Symposium on Bioactive. Polyphenols held at REC, Tiruchy, May, 1997.
12.	Saraswathy, A. et. al.	Quality assessment methods of herbal drugs used in Siddha System.	National Conference on Siddha Medicine held at Trivandrum, December. 1997.
13.	Saraswathy, A. et. al.	Analysis of <i>Amai otu Parpam</i> .	Seminar on role and uses of aquatic animals of Tamil Nadu. Tamil University, Tanjore, march 25-27, 1997.
14.	Saikala, E. et. al.	Herbal Folk remedies for <i>Neerazhivu</i>	Seminar on Neerazhivu (Diabetes mellitus) and Silver Jubilee Celebration of C.R.I. (Siddha), Chennai. March, 1998.
15.	Susan. T. et. al.	Polyhydroxy Bioactive Constituents of <i>Parmelia caperata</i>	National Chemistry Symposium on Bioactive Polyphenols held at REC, Tiruchi, May, 1997.
16.	Susan, T. & Saraswathy, A.	Effect of methanolic & aqueous extracts of <i>Cassia accidentalis</i> L. flowers on hepatic injury.	XVII All India Confernece of Pharmacy Graudates Association, Madurai, Sept. 97.
17.	Susan. T. et. al.	Effect of recemol-a rare coumarin from <i>Atalantia racegnossa</i> on hepatic injury.	49th Indian Pharmaceutical Congress Association Conference held at Trivandrum, 12-18/12/ 1997.

ACKNOWLEDGEMENT

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

The Director of the Council also places on record his gratitude and deep sense of appreciation to scientists and scholars of various disciplines of medical system and other ancillary sciences, Universities and Government agencies who are directly or indirectly associated with this Council and officials of all the research projects including the Headquarters office for their cooperation in implementing the various programmes undertaken during the period under report.

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

The council places on record the efforts of Deputy Director (Technical), Programme officers, Statistical Officer and Assistant Research Officers (Ay.) for bringing out the Annual Report in the present form.

Asstt. Res. Officer (A) /
CCRAS, New Delhi