

ANTHELMINTIC PLANTS IN TRADITIONAL REMEDIES IN INDIA*†

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(Received 12 March 1987 ; after revision 15 October 1987)

India, with its wide eco-geographical diversity, possesses a rich medicinal plant wealth and has a rich heritage of knowledge in the use of herbal drugs. A large part of the population depends, even at present, on the traditional systems of medicine, *Āyurveda*, *Unāni* and *Sidha*.

In the present article, anthelmintic uses of 52 plants have been recorded together with their botanical and vernacular (Hindi and Sanskrit) names and the way the plant or plant parts are employed.

Out of these plants, only a few species are recognised formally as anthelmintics. Traditional medicine seems to be a potential source for new chemotherapeutic agents. Hence, studies on these plants are well within the scope of ethnopharmacology for validation of these remedies.

INTRODUCTION

Since the beginning of human civilisation man has been dependent on plant kingdom for his basic needs, *viz.*, food, medicine, clothing and shelter. Ancient man derived more than 90 percent of medicinal agents from higher plants. Even today, traditional system of medicine is practised in many countries possessing ancient cultures, and major portion of their therapeutic needs are obtained from plant drugs.

India with its wide eco-geographical and climatic diversity possesses a rich medicinal plant wealth and has a very rich heritage of knowledge in the use of herbal drugs. A large part of the population depends even at the present time on the indigenous systems of medicine, *Āyurveda*, *Unāni* and *Sidha*.

In India, the earliest records of medicinal uses of plants is found in the *R̥gveda*, composed between 3500-1800 B.C. The *Atharvaveda* written about 1200 B.C. contains a good number of plants with healing properties. After the

* Presented in the 2nd Asian Congress of Parasitology held in C.D.R.I., Lucknow, February, 1986.

† CDRI Communication No. 4018.

Vedas there is no information on the development of this science in India for a period of about 1000 years. Later, two most important treatises namely *Caraka Saṃhitā* and *Suśruta Saṃhitā* appeared on Indian system of medicine. Nāgārjuna, the great scientist of that era (100-200 A.D.) edited *Suśruta Saṃhitā* and wrote few other books as *Sīdha Nāgārjuna* and *Rasendra Maṅgal*. Then the majority of the *Nighaṅṭu* literature was written in medieval period (8th to 15th centuries), the noteworthy works are : *Aṣṭāṅga Hṛdaya*, *Aṣṭāṅga Saṃgraha* by Bhāgbhata, *Saraṅgadhara Saṃhitā* by Saraṅgadhara, *Mādhavanidān* by Mādhava, *Dhanvantarīya nighaṅṭu* by Dhanwantarī, *Rāja nighaṅṭu* by Kāśīrāja and *Madanapāla nighaṅṭu* by Madanapāla, etc. *Bhāva Prakāśa* by Bhāva Miśra is an important publication of sixteenth century in the history of Indian medicine. Information on drugs of this century is also scattered in the works of European travellers to this country and the very important work was that of Garcia da Orta's (1565) *Os Coloquios*.* During seventeenth century, a European, Van Rhee, tied together all the information about the medicinal uses of plants of this country in his twelve volumes *Hortus Malabaricus* (1678-1703). *Dravyagūṇa Śataka* by Tirmalla Bhātt is another important work of this century. Eighteenth century was rather a barren period in the history of Indian medicine in which no significant contribution was made except the *nighaṅṭu* of Rājavallabha. In the beginning of the nineteenth century John Flemming (1810) made a valuable contribution on the medicinal plants of this country by publishing a monograph under the title *A Catalogue of Indian Medicinal Plants and Drugs with their names in Hindustānī and Sanskrit*. With the passing of time more works appeared on medicinal plants and some of the notable works [by *vaidyas* (Āyurvedic physicians), Botanists, Pharmacologists, etc.] appearing during nineteenth and twentieth centuries are the work of Ainslie (1813), Moodeen Sheriff (1869), Dutt (1877), Sakharam Arjun (1879), Dymock (1885), Dymock *et al.* (1890-1893), Watt (1889-1893), Dey (1896), Nandkarni (1908), Bose (1932), Kirtikar and Basu (1935), Dastur (1951), Bhandari (1951-57), Mukherjee (1953), Sharma (1955), Chopra & Chopra (1955), Chopra *et al.* (1956), Biswas (1956), P.I.D., C.S.I.R. (1948-1976), Satyavati (1976), etc. These have meticulously brought together much of the information on Indian medicinal plants.

Besides the written records on medicinal uses of herbal drugs, vast knowledge on the subject has also been inherited through folklore. Recently, efforts have been made to record these information under a specialized branch of Botany—'Ethnobotany'.

In view of the theme of the Congress, the present authors made a thorough scrutiny of the vast literature (original and secondary), as mentioned above and under references, to record the information on plants used against intestinal parasites in traditional remedies in India. In the present article 52 plants with anthelmintic uses have been recorded from authentic sources, along with the correct botanical identity/nomenclature, and vernacular names (Hindi/Sanskrit)

* Full title : *Coloquios dos simples e dragas he causas medicinais da India compostos pello Doutor Garcia da Orta.*

TABLE 1

Anthelmintic Plants used in Traditional Remedies in India

Sl. No.	Botanical name	Vernacular name H=Hindi; S=Sanskrit	Part*	Preparation and mode of administration**	Remarks
1.	<i>Acalypha brachystachya</i> Horn.	Khokali (H)	RT	Crushed in water and mixed with honey — oral	For children
2.	<i>A. indica</i> Linn.	Khokali (H) Aritamañjarī Haritamañjarī (S)	RT	Decoction with ginger and pepper and mixed with honey — oral.	For children
3.	<i>Aconitum heterophyllum</i> Wall. ex Royle	Atis (H), Ativisa (S)	RT	Powder with milk — oral.	For children
4.	<i>Alstonia scholaris</i> (Linn.) R.Br.	Chatium (H), Saptaparnī (S)	RB	Extract — oral on empty stomach.	Decoction of stem bark used in malaria.
5.	<i>Ananas cosmosus</i> Merr.	Ananas (H), Anannasa (S)	LF	Juice mixed with honey — oral	—
6.	<i>Areca catechu</i> Linn.	Supāri (H), Pūgiphalam (S)	SD	Grated nut with water — oral.	Now in Veterinary practices; once included in B.P.
7.	<i>Aristolochia bracteolata</i> Lamk (<i>A. bracteata</i> Retz.)	Kiramari, Keetmari (H), Dhūmrapatra (S)	RT	(i) Decoction — oral, followed by castor oil. (ii) Extract — oral.	—
8.	<i>Artemisia absinthium</i> Linn.	Vilayati-afsanthin (H), Damar (S)	PL	(i) Strong decoction — oral. (ii) Powder — oral. (iii) Infusion of plant — enema.	—
9.	<i>A. maritima</i> Linn.	Kirmala, Kirmani ajwayan (H), Gandha, Cauhār, Yavanī (S)	PL FL.B LF	(i) Powder — oral. (ii) Decoction or infusion — oral.	Official
10.	<i>Bauhinia racemosa</i> Linn.	Kachnaḷ (H), Svetakāñcan (S)	SB FL.B	Decoction — oral.	

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11.	<i>B. tomentosa</i> Linn.	Kachnār (H). Aśvamantakā (S)	RB	Decoction — oral.	
12.	<i>Blumea lacera</i> (Burm. f.)	Kukurāundhā (H). Kukuradrū (S)	LF	Expressed juice — oral.	
13.	<i>Butea monosperma</i> (Lam.) Ktze.	Dhāk (H). Palāśa (S)	SD	Juice or powder mixed with honey — oral.	Reputed traditional medicine.
14.	<i>Caesalpinia crista</i> Linn.	Karajnu (H). Kuberakṣī (S)	SD	Paste mixed with gur — oral.	
15.	<i>Carica papaya</i> Linn.	Papeetā (H). Pāpāyam. Aranda karkaif (S)	MJ	With sugar — oral.	
16.	<i>Cassia sophora</i> Linn.	Kasunda (H). Kaṣamarda (S)	LF	Decoction — oral.	
17.	<i>Centratherum anthelminticum</i> (Willd.) Ktze.	Kalijiri. Somraj (H). Somarājī (S)	SD	Paste with honey — oral or infusion — oral.	
18.	<i>Chenopodium album</i> Linn.	Bathuā. Bethu- Sag (H). Vastuk (S)	LF,SD	Infusion — oral.	
19.	<i>C. ambrosioides</i> Linn.	Gandhavastuk (S)	LF,SD	Infusion — oral.	Official (Oil).
20.	<i>C. botrys</i> Linn.	Bathu. Sokann (H)	LF,SD	Infusion — oral.	
21.	<i>Cichorium intybus</i> Linn.	Kasni. Kasani. Kāsini (H).	SD	Powder — oral.	

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22.	<i>Clerodendrum viscosum</i> (Vent.) Linn. (<i>C. infortunatum</i> Linn.)	<i>Bhant, Tibhant</i> (H), <i>Bhantaka</i> , <i>Bhāndira</i> (S)	LF RT	Juice — oral. Boiled in goat's milk — oral.	
23.	<i>Costus speciosus</i> (Koen.) Sm.	<i>Keu</i> (H), <i>Kuṣṭa</i> (S)	LF	Juice — oral.	
24.	<i>Cucurbita maxima</i> Duch.	<i>Kaddu, Sitaphal</i> (H)	SD	Paste — oral.	
25.	<i>C. pepo</i> Linn.	<i>Kumhra, Safed</i> <i>Kaddu</i> (H), <i>Kurkaru</i> (S)	SD	Paste — oral.	
26.	<i>Curcuma longa</i> Linn.	<i>Haldi</i> (H), <i>Haridrā</i> (S)	RH	Juice — oral.	
27.	<i>Cyperus rotundus</i> Linn.	<i>Mothā</i> (H), <i>Muṣṭa</i> (S)	TU	Decoction — oral.	
28.	<i>Daucus carota</i> Linn.	<i>Gājar</i> (H), <i>Sikhā-mūlam</i> (S)	RT	Juice — oral on empty stomach.	
29.	<i>Dryopteris</i> spp.	<i>Male-fern</i> (English)	RH	Decoction — oral on empty stomach.	Official.
30.	<i>Embelia ribes</i> Burm. f.	<i>Bayvidang</i> (H), <i>Vidaṅga</i> (S)	FR	Powder individually or mixed with seed powder of <i>Butea monosperma</i> with water or honey — oral.	Official. Reputed traditional medicine
31.	<i>E. tsjeriam-cottam</i> A. DC.	<i>Bayvidang</i> , <i>Vaivirang</i> (H), <i>Vidaṅga</i> (S)	FR	Powder as above — oral.	

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32.	<i>Erythrina indica</i> Lam.	Pharhad (H). Paribhadra (S)	LF	Juice mixed with honey — oral.	
33.	<i>Gloriosa superba</i> Linn.	Kalithari (H). Sakrapuspī (S)	RT	Powder with gur — oral.	
34.	<i>Gmelina arborea</i> Roxb.	Kambhari. Gamari (H). Gumbhari (S)	RT LF	Decoction — oral. Juice — oral.	
35.	<i>Holarthena antidysenterica</i> (Roth) DC.	Kūrc̄hi (H). Kutajū. Pāṇḍura (S)	SD	Decoction — oral.	
36.	<i>Hyoscyamus niger</i> Linn.	Khursani-Ajwain (H). Parāśikaya (S)	SD	Powder mixed with little salt — oral.	
37.	<i>Ipomoea hederacea</i> (Linn.) Jacq.	Kaladana (H). Kṛṣṇabīja (S)	SD	Powder — oral.	
38.	<i>I. reniformis</i> Choisy	Musakani (H). Mushakarri. Ākhukarṇī (S)	LF	Juice mixed with rice flour and made bread — oral.	
39.	<i>Lagenaria siceraria</i> Standl. (Wild variety)	Lauki. Kashiphal. Kadu tumbi (H). Alābu (S)	SD	Pulp mixed with coconut water — oral.	
40.	<i>Leea aequata</i> Linn.	Kākajāinghā (H and S)	RT	Decoction — oral.	
41.	<i>Lycopersicon lycopersicum</i> (Linn.) Karsten	Tamatar (H)	FR	Powder of gol mirch, black salt and kalmi shora sprayed on half cut tomatoes and kept for a night — oral on empty stomach, in morning.	

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42.	<i>Mallotus philippinensis</i>	<i>Kamala, Kabila, Kamila</i> (H), <i>Recanaka, Karkaša Raktong, Kāmpillak</i> (S)	FR	Powder obtained from skin of ripe fruits — oral with milk or curd or honey.	Reputed traditional medicine
43.	<i>Melia azedarach</i> Linn.	<i>Bakain</i> (H), <i>Mahānimba</i> (S)	LF RB	Juice } — oral followed by a Decoction } cathartic.	For children
44.	<i>Mucuna pruriens</i> (Linn.) DC.	<i>Kewanch</i> (H), <i>Āmagupta</i> (S)	PD	Infusion — oral.	
45.	<i>Musa paradisca</i> Linn. and <i>M. paradisca</i> var. <i>sapientum</i> Ktze.	<i>Kela</i> (H), <i>Kadalī</i> (S)	RT	Decoction made with gur and ghee — oral.	
46.	<i>Peganum harmala</i> Linn.	<i>Hurmāl, Harmal</i> (H and S)	SD	Powder — oral.	
47.	<i>Psoralea corylifolia</i> Linn.	<i>Babchi</i> (H), <i>Bakucī</i> (S)	SD	Powder — oral.	
48.	<i>Punica granatum</i> Linn.	<i>Anar</i> (H), <i>Dāqīma</i> (S)	SB, RB	Decoction mixed with til oil — oral.	
49.	<i>Rauwolfia serpentina</i> (Linn.) Benth. ex Kurz.	<i>Chotachand</i> (H), <i>Sarpagandhā</i> (S)	RT	Decoction with zingiber and golmirch — oral.	
50.	<i>Sesbania bispinosa</i> (Jacq.) Fawcett and Randle	<i>Jayanti</i> (H and S)	LF	Paste — applied externally on stomach.	
51.	<i>S. sesban</i> (Linn.) Merr.	<i>Jaint</i> (H), <i>Jayanti, Jayā</i> (S)	LF	Juice — oral.	
52.	<i>Tabernaemontana divaricata</i> (Linn.) R. Br.	<i>Tagara</i> (H and S)	LF	Decoction — oral.	

*Explanation : RT=Root ; RB=Root bark ; LF=Leaf ; SD=Seed ; FL,B=Flower buds ; PL=Plant ; PD=Pod ; SB=Stem bark ; FR=Fruit ; MJ=Milky juice of unripe fruit ; RH=Rhizome ; TU=Tuber.

**One Dose : 3 - 5 g in case of powder ; half to one tea cup in case of liquid like decoction, extract, juice, etc.

of the plants. The way the plant or plant part is employed is also indicated. Intake of these plant preparations either directly or indirectly kill or render powerless and expel intestinal parasites (roundworm, hookworm, tapeworm, threadworm) from alimentary canal.

The 52 plant species with relevant information are given in Table 1.

DISCUSSION

Out of the 52 plants, only a few species are recognised formally as anthelmintic (Anonymous, 1966); these are *Embelia ribes*, *Chenopodium ambrosioides*, *Dryopteris* spp. and *Artemisia* spp. Hence, the other plants enumerated need to be scientifically investigated. Due to the revival of worldwide interest in traditional medicine, various new scientific disciplines such as 'ethnomedicine', 'ethnopsychiatry', and 'ethnopharmacology' are emerging and creating a need for basic scientific research into this field. Pilocarpine, emetine, ephedrine, scopolamine, digitoxin, quinine, and reserpine are a few well known examples of natural products used as medicinal agents which have come from scientific study of traditional remedies. The experimental investigations of indigenous drugs are well within the scope of ethnopharmacology (Bruhn and Helmstedt, 1980) for validation or invalidation of these remedies either through the isolation of the active substances or through pharmacological techniques. The traditional medicines are potential source for new chemotherapeutic agents and ethnopharmacology is the scientific backbone of drug development from traditional medicine.

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