Academic Sciences International Journal of Pharmacy and Pharmaceutical Sciences

ISSN- 0975-1491 Vol 4, Issue 1, 2012

Research Article

BIO-PROSPECTING AND DOCUMENTATION OF TRADITIONAL MEDICINAL PLANTS USED TO TREAT RINGWORM BY ETHNIC GROUPS OF KURNOOL DISTRICT, ANDHRA PRADESH, INDIA

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Received: 20 Aug 2011, Revised and Accepted: 20 Oct 2011

ABSTRACT

WHO Promoting the herbal drugs because of its therapeutic potentials. The present paper aimed to document the wealth of medicinal plant species used by ethnic groups of Kurnool District to curing Ringworm disease. It was found that all plant parts and their extracts used to treat Ringworm skin disease. The information of plants used to treat this skin diseases from tribal people was collected and plant species were identified with the help of the floristic treatises and date was documented. The documented information was cross checked with Ayurvedic physicians. The results revealed that 23 plants species are using by people belonging to four ethnic groups. Among these 10 plant species used by Ethnic groups to treat Ringworm disease are also prescribed by Ayurvedic doctors. Nationally four Ayurvedic companies are preparing 21 types of drugs and releasing in the market. Remaining 13 plant species should be explored for the safety of herbal preparation to cure Ringworm disease. These plants represent a major source for the pharmaceutical industries in a view of their raw material. The information will draw the attention of pharmacologists and phytochemists for further critical investigations.

Keywords: Bio-prospecting, Medicinal plants, Ringworm, Ethnic groups.

INTRODUCTION

The relationship between man, plants and drugs derived form plants described the history of mankind. Since ancient times, people have been exploring the nature particularly plants in search of new drugs. This has resulted in the use of large number of medicinal plants which curative properties to treat various diseases[1]. WHO encouraging the traditional drugs because of its less side effects and matter of low cost, easy availability hence most of the European countries expanding towards Ayurvedic medicines[2]. Now-a-days plant based drugs are widely used and many countries contributes 40-50% of their total health budget in the production of novel drugs[3].

In India, drugs of herbal origin have been used in traditional systems of medicines such as Unani, Ayurveda, and Siddha[4]. India is one of the worlds 12 biodiversity centers with the presence of over 45000 different plant species. Of these, about 15,000 to 20,000 plants have gold medicinal value. Everyday new inspiring information is being added to folklore medicine for the development of drugs[5].

Ethnic groups have staunch confidence on medicinal plants for the treatment of Ringworm disease. A reddish ring shaped rash on skin sometimes may be itchy has conformed that the infection is caused by fungus which can spread on the skin surface. Despite of various studies that have been conducted on medicinal plants of Andhra Pradesh[6-12], Orissa[13], Rajasthan[14], Maharashtra[15], Karnataka[16], India, the studies on medicinal plants[30-32] to treat disease are scanty. Hence the present study was under taken to document the traditional use of plant species to treat Ringworm.

The Kurnool Districts is one of the oldest and richest cultural traditions of using medicinal plants, which is located ($14^{0}54^{1}$ and $16^{0}11^{1}$ NL; and $76^{0}58^{1}$ and $78^{0}25^{0}$ EL]; with the total geographical area of 18,799 km^2 in Andhra Pradesh, India[17]. The study area is inhabited by the ethnic groups of Chenchu, Yerukala, Sugali (Lambadas) and Yanadi. The ethnic groups inhabited at the river bank of water streams in the forest posses fairly good knowledge about the medicinal properties of plants. Even though a number of reports are available on the ethnobotany of Kurnool District[18-27], the detailed study on medicinal plants used to cure Ringworm skin disease is not reported so far. Therefore, an attempt has been made to record the medicinal plants used to treat Ringworm skin disease from ethnic groups (traditional healers) and compared with Ayurvedic medicines which are available in the market. This study is most helpful of ethnobotanists, phytochemists and pharmacologists for validation and clinical studies, to explore the importance of left over medicinal plants which are only used by ethnic groups and not mentioned hitherto.

MATERIALS AND METHODS

An extensive field survey was carried out during 2008 to 2010 in the tribal belts and adjoining forest areas of Kurnool district to collect the information on medicinal plants used to treat ringworm diseases by ethnic groups Chenchu, Yerukala, Sugali and Yandi. The information was gathered on plants used to treat Ringworm disease mainly on plant part and time of collection from the field; preparation of medicine and type of administration of the drug. All plants mentioned by them to treat Ringworm disease were collected and identified with the help of the floristic treatises published by Gamble[28]; Venkataraju and Pullaiah[19]. The information given by ethnic groups was cross checked with Ayurvedic physicians of Sri Venkateswara University Ayurvedic Hospital, Tirupati, for authentication. Ayruvedic drugs are available in the market in various brands in which 10 plants mentioned by ethnic groups were included. Chi-square test was carried out to test the association of plant part used to Ringworm disease.

RESULTS AND DISCUSSION

From the study area documented plants claimed to have medicinal value for the treatment of Ringworm disease are presented in (Table-1). Scientific names of plants have been arranged alphabetically. The identified taxa are taxonomically analysed and nomenclature is updated with the help of ICBN rules[29]. The plant species are followed by family name within the parentheses, vernacular name, plant part used, preparation of medicine, form of medicine and therapeutic action are provided. The information is obtained for 23 plant species which are belonging to 22 genera of 20 families.

Ayurvedic physicians of Sri Venkateswara Ayurvedic Hospital are prescribing the medicine to treat Ringworm disease by using ten different forms of drugs like Arista, Churna, Capsule, Lehya, Thailams, Oils, Yanakam, Rasayana, Pills and Murivena (Table-2). The total 23 plants species mentioned by ethnic groups to treat Ringworm disease 10 plants species are including in the preparation of 21 types of Ayurvedic drugs. These 21 types of Ayurvedic drugs in different trade names Babbularista, Whitenil

Powder, Karappam Thailam, Sudharsana Churna etc. (Table-2) are releasing in the market by four Ayurvedic companies (manufactures) after clinical trails and getting approved from the Department Drug Control of India.

Table 1: Medicinal plants used to treat Ringworm diseases by ethnic groups

S. no	Scientific name and family	Vernacular name (telugu language)	Part used	Preparation and of administration
1	*Abutilon indicum* (L.) Sweet *(*Malvaceae*)*	Thuturabenda	Leaves	A handful of the fresh leaves made into a paste with water is externally applied on the skin thrice a day to treat ringworm infection.
2	*Ailanthus excelsa* Roxb. *(*Simaroubaceae*)*	Peddamanu	Bark	Dry stem bark boiled in water the decoction is mixed with sugar candy and lime, given orally thrice a day to treat ringworm infection.
3	*Aristolochia indica* L. *(*Aristolochiaceae*)*	Govela teega	Whole plant	10 g of the whole plant (10 g) along with equal amount of the rhizomes of *Kaempferia glanga* L. and leaves of *Hiptage benghalensis* (L.) Kurz. are boiled in coconut oil and the oil extract is externally applied thrice a day to treat ringworm infection.
4	*Canthum parviflorum* Lam. *(*Rubiaceae*)*	Balasa	Leaves	Leaf paste is externally applied twice a day to treat ringworm infections.
5	*Cassia occidentalis* L. *(*Caesalpiniaceae*)*	Kasitha	Leaves	The leaves made into paste with water is externally applied to skin, daily in the morning for a week to treat ringworm infection.
6	*Centella asiatica* L. *(*Apiaceae*)*	Saraswataku	Whole plant	Whole plant powder, made into paste with honey and given orally with an empty stomach to treat ringworm infection.
7	*Costus speciosus* (Koen) Smit. *(*Costaceae*)*	Vanavasa	Whole plant	The rhizome and leaf (1:1 ratio) made into paste with water and is externally applied once a day to treat the ringworm infection.
8	*Jatropha curcas* L. *(*Euphorbiaceae*)*	Adavi amudam	Leaves	Leaf paste is externally applied twice a day to treat ringworm infection.
9	*Lantana camara* L. *(*Verbenaceae*)*	Pulikampa	Leaves	Fresh leaves ground into paste and mixed with honey and given one cup twice a day orally for one week to treat ringworm infection.
10	*Lawsonia inermis* L *(*Lythraceae*)*	Gorinta	Leaves	The leaves are soaked in coconut oil for a week along with the flowers of *Saraca asoca* L**.** and the oil infusion is used to treat ringworm infection.
11	*Leucas aspera* (Wild) Link. *(*Lamiaceae*)*	Thummi	Leaves	Leaf grounds is made into cow's urine is externally applied twice a day to treat the ringworm infection.
12	*Momordica charantia* L. *(*Cucurbitaceae*)*	Kakara	Leaves	Handful of leaves made into a paste with mother's milk and is externally applied twice a day for 15 days to treat the ringworm infection.
13	*Rauwolfia serpentina* (L.) Bentn. ex Kurz *(*Apocynaceae*)*	Sarpagandha	Root	Root along with the root of *Thottea siliquosa*, Forsk. rhizome of *Kaempferia galanga* (L.) Kurz. and fruits of *Helecteris isora* L. (10 g each) are pounded and boiled in coconut oil (300 ml). The oil extract externally applied twice a day for 20 days to treat ringworm infection.
14.	*Acacia caesia* (L.) willd *(*Mimosaceae*)*	Korintha	Bark	The dried bark made into powder is used like bathing soap to treat ringworm infection.
15.	*Aloe vera* (L.) Burn.f. *(*Liliaceae*)*	Kutikalabanda	Leaves	Mucilage taken from the fresh leaf is externally applied thrice a day to treat ringworm infection.
16.	*Aristolochia bracteolate* Lam. *(*Aristolochiaceae*)*	Tadida gadapa	Whole plant	Whole plant paste is externally applied twice a day to treat ringworm infection.
17.	*Asparagus racemosus* Willd*. (*Liliaceae*)*	Pillitegalu	Tuber	Tuberous root paste in externally applied once a day to treat the ringworm infections.
18.	*Boerhaavia diffusa* L. *(*Nyctaginaceae*)*	Atikamamidi	Leaves	A handful of leaves are boiled in coconut oil (100 ml) and the oil extract is externally applied twice a day to treat ringworm infection.
19.	*Eclipta prostrata* (L) Mant. *(*Asteraceae*)*	Guntagalagara	Leaves	Leaves along with the seeds of *Foeniculum vulgare* L. (1:1 ratoi) are boiled in coconut oil (100 ml) and the oil extract applied daily in the morning hours for a week to treat the ringworm infection.
20.	*Piper nigrum* L. *(*Piperaceae*)*	Miriyalu	Leaves	10g of the leaf paste is externally applied twice a day to treat the ringworm infection.
21.	*Plumbago zeylanica* L. *(*Plumbaginaceae*)*	Chitramulamu	Root	Fresh roots ground with common salt along with Jaggery, made into pills of peanut size and 2 pills are given orally at morning time to treat ringworm infection.
22.	*Pongamia pinnata* L. *(*Fabaceae*)*	Kanuga	Bark	100g of the dried bark powder is boiled in 200 ml of coconut oil and the oil extract is externally applied thrice a day for 3 weeks to treat the ringworm infection.
23.	*Vernonia anthelmintica* (L.) Willd *(*Asteraceae)	Adavijilakara	Leaves	Matured leaves ground into paste with cow's milk made into pills of soapnut size, 3 pills are given orally twice a day for 15 days to treat ringworm infection.

Among the plant parts of leaves are (56.6%) followed by whole plant (17.4%), bark (13.0%), root (8.7%) and tuber (4.3%) (Fig-1) are using in the preparation of medicine.

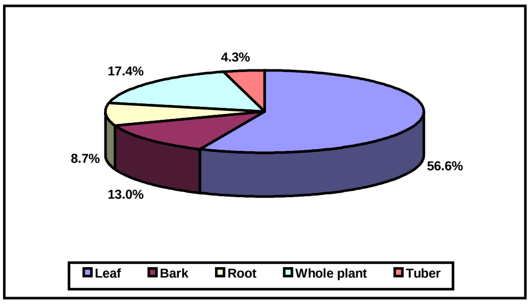

Fig. 1: Different plant parts used by the ethnic groups to treat Ringworm disease

Table 2: Medicinal plants used by ethnic groups and also listed in the preparation of Ayurvedic Drugs (Popular brands released nationally in the market) to treat Ringworm disease

S.No.	Scientific Names	Form of Drug: Arista				Churna		Capsule / Tablet		Lehya		Thailams					Oils		Yanakam	Pill	Rasayana	Murivena	
		Trade name of the Drug																					
		B.B (10) d	D.S. (64) d	K.H (16) d	KIR (6) d	W.P (4) c	S.C. 34 d	V.C. (12) c	B.T. (7) a	PL (8) d	PAL (27) d	AT (8) b	KT (16) b	NT (14) b	ST (22) b	SOT (7) d	N.O (31) b	V.O (5) c	DY. (33) b	GP (52) b	M.R. (25) d	M.V. (8) b	Total
1.	*Acacia caesia*	1	1	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	**4**
2.	*Aloe vera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	**2**
3.	*Aristolochia bracteolata*	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	**1**
4.	*Aspuragus racemosus*	-	-	-	-	-	1	-	-	-	1	-	1	-	-	-	-	-	-	-	-	1	**4**
5.	*Boerhavia diffusa*	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	**2**
6.	*Eclipta prostrata*	-	-	-	-	1	-	1	-	-	-	-	1	-	-	-	-	-	1	-	-	-	**4**
7.	*Piper nigrum*	1	-	1	1	-	1	-	-	-	-	-	-	1	1	-	1	-	-	1	1	-	**9**
8.	*Pongamia pinnata*	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	1	-	-	-	1	**5**
9.	*Plumbago zeylanica*	-	1	-	1	-	1	-	-	1	-	-	-	-	1	-	1	-	-	-	1	-	**7**
10.	*Vernonia anthelmintica*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	**1**
	TOTAL	**2**	**3**	**2**	**2**	**1**	**3**	**2**	**1**	**1**	**1**	**1**	**2**	**2**	**3**	**1**	**2**	**1**	**2**	**3**	**1**	**3**	**39**

B.B	:	Babbularista	D.S	:	Dasamoolarista	K.H	:	Khadirarista	KIR	:	Kiratarista	a, b, c & d are manufacturer of the drug
W.P	:	Whitenil Powder	S.C	:	Sudharsana Churna	V.C	:	Visora Cap	PL	:	Panchtikta Ghrita Guggulu Lehya	a: Kerala Ayurvedic Ltd., Athani, Alura, Kochi, Kerala-683585, India b: Viadyaratnam
PAL	:	Palasugandha Lehya	AT	:	Ashtapathradi thailam	K.T	:	Karappam Thailam	N.T	:	Neeli Thailam	Oshadhasala, Olluru, Thrissur, Kerala-683585,
ST	:	Satnadhara Thailam	SOT	:	Somaraja Thailam	NO	:	Nimbamnithadi oil	VO	:	Visora oil	India c: Fours Lab, Achayyanagar,
D.Y	:	Doorvadi Yanakam	G.P	:	Gopeechandanadi pills	MR	:	Madhusnuhi rasayana	M.V	:	Murivena	Hyderabad-500044, Andhra Pradesh, India d: Imi's Pharmaceuticals Pvt. Ltd., Seetharamapuram,

Vijayawada-50002, India

The number in the peranthesis indicates total number of ingreadients present in the formulation

However remaining thirteen plant species are purely used by ethnic groups only. The results reveled that there is a significant association between Ringworm disease and plant part (Table-3), ('p' value is 0.003 < 0.01 for the corresponding Chi-square value is 55.243).

Table 3: Summary of CHI-Square Test

Chi-Square value=55.243**		**Plant part**					
p-value=0.003		**Leaf**	**Bark**	**Root**	**Whole plant**	**Tuber**	**Total**
Diseases	Ringworm	13	3	2	4	1	23
	Total %	56.50%	13.00%	8.70%	17.40%	4.30%	100.00%

CONCLUSION

The traditional knowledge on the properties of plants and their uses to treat Ringworm skin disease are increasingly being put to the practice of Ayurvedic medicine. Among 23 plants used by ethnic groups of Kurnool district for treating Ringworm diseases only 10 plant species has been known to public, remaining 13 plant species should be explored for herbal preparation to cure for Ringworm skin diseases. Otherwise this traditional knowledge will slowly disappear due to lack of proper documentation and awareness. These plants represent a major source for the pharmaceutical industries in view of their raw material. Modern medical facilities are now making a rapid penetration into tribal villages, which may result in the disappearance of the herbal wealth. It is hoped the remaining 13 plants species that this study will draw the attention of ethnobotanists, phytochemists and pharmacologists for further critical investigations.

ACKNOWLEDGEMENT

The authors are highly grateful to ethnic groups who shared their knowledge of plants for treating Ringworm diseases and locating the plants in the field. Our thanks to Ayurvedic physicians Dr. B. Gnana Prasuna, Dr. B. Harinathachary, Dr. H. Datthathreya of Sri Venkateswara Ayurvedic Hospitals, Tirupati, for their valuable discussions and clinical information.

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