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FOLK REMEDIES OF MEDICINAL PLANTS FOR SNAKE BITES, SCORPION STINGS AND DOG BITES IN EASTERN GHATS OF KOLLI HILLS, TAMIL NADU, INDIA

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ABSTRACT

Folk remedies practiced by the tribes of Kolli Hills of Eastern Ghats, Tamil Nadu, India were documented. Around 30 folk remedies for snake bite, 18 for scorpion sting and 4 for dog bite were reported in this study. Details of the plants used for snake bite, scorpion sting and dog bite with local name, parts used and methods of preparation, dosage and the mode of administration were discussed.

Keywords: Folk remedies, snake bite, scorpion sting, dog bite, Eastern Ghats.

INTRODUCTION

Plants have been used in traditional medicine for thousands of years. The knowledge of medicinal plants has been accumulated from different medicinal systems such as Ayurveda, Unani and Siddha. In India, it is reported that traditional healers use 2,500 plant species and 100 species of plants serve as regular source of medicine.¹ In the last few decades there has been an increasing interest in the study of medicinal plants and their traditional use in different parts of the world.² In developed countries, 25 per cent of the medicinal drugs used are from plants and their derivatives.³ Traditional medicinal knowledge is important not only for its potential contribution to drug development and market values but also for the healthcare professionals. Documenting the indigenous knowledge through ethnobotanical studies is important for conservation and utilization of biological resources. Tribal groups, forest dwellers and rural people possess unique knowledge about plants and their uses.⁴ According to WHO⁵ 80 per cent of the world population depend upon traditional medicine for their primary healthcare needs. Several medicinal plants with accepted therapeutics in the healthcare are now attracting greater attention for the fact that they are shedding more light on their hidden biologically active principles.⁶

Although many studies concerning the ethnobotanical studies of common ailments such as cuts, wounds, cold, cough, fever, asthma, chronic disorders, ulcer, leprosy, rheumatism, antidotes in poisonous bites and veterinary diseases have been carried out targeting the Kolli Hills,⁷ there is scarce information on the folk remedies for snake bite, scorpion sting and dog bite.⁸

Besides this, it is made known that the traditional healers are dwindling in number; the younger generation is not interested to carry on this tradition of folklore remedies. Hence there is a grave danger of disappearance of traditional knowledge. Therefore, it becomes the responsibility of the scientific community to unravel the information and to document the folklore remedies for

availability to the whole world for the benefit of human beings. Therefore the present study was undertaken to document the detailed information on medicinal plants used by tribes and traditional healers in Kolli Hills of Eastern Ghats for snake bite, scorpion sting and dog bite.

MATERIALS AND METHODS

Eastern Ghats of India is ethnobotanically very rich in having a wide variety of medicinal plants.⁹ With its diverse topographical condition; this region is well suited for a range of medicinal plant species. Eastern Ghats of Kolli Hills is situated in the Namakkal District of Tamil Nadu with an area of 441.8 sq. km. The area of investigation (Figure 1) lies between 11°10'-11°30' N latitude 75°15'-75°30' E longitude. The hill is bounded by Namakkal in the South and South West, Rasipuram in the North West, Attur in the North East and Tiruchirapalli in the South East region and this is attributed to the richness of the flora and several localized forests.¹⁰ Kolli Hills on the western, eastern and southern sides rise abruptly from the plains and on the northern side ascend to the plains by numerous long and gently sloping spurs. As per 2011 census, the total population of Kolli Hills is about 42,200 in 14 villages. The present study on ethnobotanical survey of medicinal plants used for snake bite, scorpion sting and dog bite was carried out at four different areas such as Semmedu, Solakkadu, Ariyur Solakkadu and Keel Solakkadu of Kolli Hills.

Data collection on ethnobotanical knowledge was carried out on 2010-2011 using a specific questionnaire.¹¹ The plants were collected with the help of traditional healers and information on the medicinal plants such as vernacular name, parts used, time of collection of the plant material, the methods of preparation of botanical products, dosage and mode of administration of various herbal remedies were recorded. The information recorded was further crosschecked by consulting the beneficiaries, villagers and also two traditional healers who are above 60 years old and who are in the occupation for more than 30 years. The medicinal plants were botanically identified

using the Flora of Tamil Nadu Carnatic¹² and an Excursion Flora of Central Tamil Nadu.¹³ The herbarium specimens were deposited in the Department of Biology, Gandhigram Rural Institute, Gandhigram, for the future reference.

RESULTS AND DISCUSSION

Generally each and every plant has medicinal value. In the present study 35 plant species of medicinal plants belonging to 34 genera of 23 families for the snake bite; 28 plant species belonging to 27 genera of 21 families for scorpion sting and 12 plant species of 12 genera of 11

families to cure dog bite are reported. Totally about 52 plant species of 29 families distributed in 49 genera are reported to treat snake bite, scorpion sting and dog bite. The detailed information such as the local name of the plant, parts used and methods of preparation of botanical products, dosage and mode of administration were documented from the local people, tribes and traditional healers of Kolli Hills in Namakkal District of Tamil Nadu. The medicinal plants are being taken orally either raw or in the form of crude extracts, juice, decoction, infusion, paste, powder, tincture, ash and also externally as oil (Table 1).

Botanical Name	Vernacular Name	Family	Useful Parts	Uses			Other Medicinal Uses	Preparations & Mode of Application
				S.B	S.S	D.B		
<i>Abrus precatorius</i> L.	Kundumani	Fabaceae	Roots, Leaves	√			Nervous disorders in children, cuts, wounds, inflammation.	Paste (internal & external)
<i>Achyranthes aspera</i> L.	Naaiuruvi	Amaranthaceae	Whole plant	√		√	Headache, to increase breast milk.	Decoction (internal)
<i>Aloe vera</i> L.	Kathalai	Liliaceae	Whole plant		√		Kidney stones, ulcer, cold, ear problems, typhoid, malaria.	Juice (internal & external)
<i>Anisomeles malabarica</i> R.Br.	Peimiratti	Lamiaceae	Whole plant	√	√		Stomach & bowel problem, to expel gas from intestines.	Paste (internal)
<i>Aristolochia indica</i> L.	Urikakodi	Aristolochiaceae	Whole plant	√	√		Wounds, fever, emesis, nausea.	Paste (external)
<i>Azadirachta indica</i> A. Juss.	Vembu	Meliaceae	Flowers	√			Stomach ache, intestinal worms, ulcer, malaria, fever, eczema.	Juice (internal)
<i>Blepharis maderaspatensis</i> L.	Naikalli	Acanthaceae	Leaves	√	√	√	Venereal diseases, malaria and jaundice.	Juice (internal)
<i>Calendula officinalis</i> L.	Marikollundu	Asteraceae	Flowers	√			Incised wounds, burns, ulcers, skin diseases.	Juice (internal)
<i>Calotropis gigantea</i> L. R. Br.	Erukku	Asclepiadiaceae	Roots	√			Jaundice, fever, eye diseases, male fertility disorders, cuts, wounds.	Paste (internal & external)
<i>Cardiospermum helicacabum</i> L.	Mudakothan	Sapindaceae	Leaves	√			Rheumatic pain, swellings, tumours, rheumatoid arthritis	Paste (external)
<i>Cassia alata</i> L.	Semaigatti	Caesalpiniaceae	Leaves	√	√	√	Vaginal discharges, ringworm, cancer, paralysis, rheumatism.	Paste (internal)
<i>Cassia tora</i> L.	Tagarai	Caesalpiniaceae	Seeds	√			Leucorrhoea, fever, asthma, cough, ulcer, wounds, chronic constipation.	Decoction (internal)
<i>Cissus quadrangularis</i> L.	Pirandai	Vitaceae	Seeds, Leaves		√		Tumour, malarial fever, diarrhoea, caused by indigestion, easy delivery.	Juice (internal) Paste (external)
<i>Citrus limon</i> L.	Elumichai	Rutaceae	Fruits	√			Dry skin, making body color fairer, eczema, furuncle, pimples.	Paste (external)
<i>Curcuma angustifolia</i> Roxb.	Kattumanchal	Zingiberaceae	Rhizome	√	√	√	Wounds, cuts, body ache, bone fracture, dysentery, swellings.	Paste (external)
<i>Curcuma longa</i> L.	Manchal	Zingiberaceae	Rhizome		√		Ringworm, scabies, cough, bronchitis, indigestion, cuts, wounds.	Paste (external)
<i>Cyperus rotundus</i> L.	Koraipul	Cyperaceae	Roots	√			Microbial contaminations, body pain, malaria, diarrhoea, dysentery.	Paste (external)
<i>Datura metel</i> L.	Oomathai	Solanaceae	Roots	√			Male fertility disorders, partial paralysis, mental disorders.	Paste (internal)
<i>Dodonea viscosa</i> L. Jacq.	Velari	Sapindaceae	Leaves	√			Intestinal worms, fish poison, swellings, rheumatic joints, jaundice.	Paste (external)
<i>Eclipta alba</i> L.	Karisilanganni	Asteraceae	Leaves	√	√	√	Injury caused due to continuous contact with	Juice (internal)

							mud.	
<i>Eclipta prostrata</i> L.	Manchal Karisilanganni	Asteraceae	Leaves	✓	✓		Catarrh, malarial fever, body inflammation, jaundice.	Paste (external)
<i>Gloriosa superba</i> L.	Kalapaih Kilangu	Liliaceae	Tuber	✓	✓	✓	Quite delivery, Vaginal uterine prolapsed, piles, ulcers, leprosy.	Paste (external)
<i>Gymnema sylvestre</i> R. Br.	Sirukurinchaan	Asclepiadaceae	Roots	✓			Wounds, diabetes, eye problems, fever.	Juice (internal)
<i>Helianthus annuus</i> L.	Suriyakanthi	Asteraceae	Seeds		✓		Intermittent fever, body cool, nasal haemorrhage.	Oil (external)
<i>Hemidesmus indicus</i> L.Schultes.	Nantamul	Asclepiadiaceae	Roots	✓			Inflammation, diabetes, fever, hair growth, ulcers, rheumatism.	Decoction (internal)
<i>Hybanthus enneaspermus</i> L.F.	Orilathamatai	Violaceae	Whole plant		✓		As diuretic, as demulcent, bowel complaints in children.	Juice (internal)
<i>Kalanchoe pinnata</i> (Forsk.) Pers.	Katakataka	Crassulaceae	Leaves		✓		Venomous insect bite, rheumatism, stiff joints, kidney stones.	Paste (external)
<i>Leucas aspera</i> (Wild.) Link.	Thumbai	Lamiaceae	Leaves	✓	✓		Tooth ache, chronic asthma, eye problems, fever, head ache.	Decoction (internal)
<i>Mangifera indica</i> L.	Mamaram	Anacardiaceae	Petiole		✓		Diabetes, removal of tooth, diarrhoea, throat infection, wounds.	Paste (internal)
<i>Michelia champaga</i> L.	Champangam	Magnoliaceae	Leaves		✓		Indolent swellings, body cool, cuts, wounds, skin diseases.	Juice (internal)
<i>Mimosa pudica</i> L.	Thottal surungi	Mimosaceae	Whole plant	✓	✓		Diabetes, boils, scabies, cuts, wounds, inflammation.	Paste (external)
<i>Moringa oleifera</i> Lam.	Murungaih	Moringaceae	Root bark	✓		✓	Diarrhoea, abscess on eyes, earache, stomach ache, cuts and wounds.	Paste (external)
<i>Mucuna pruriens</i> (L.) DC.	Poonaikkali	Fabaceae	Seeds, Whole plant	✓	✓		Asthma, cancer, mumps, diarrhoea, ringworm, syphilis.	Decoction & powder (internal & external)
<i>Murraya Koeinegii</i> L.	Karuveppilai	Rutaceae	Leaves, bark, root bark	✓	✓	✓	Toothache, dysentery, diarrhoea, to check vomiting.	Juice (internal & external)
<i>Musa paradisiaca</i> L.	Valaimaram	Musaceae	Bark	✓	✓	✓	Leprosy, mental disorders.	Juice (internal)
<i>Nerium oleander</i> L.	Arali	Apocyanaceae	Seeds	✓			Heart problems, paralysis, skin diseases.	Paste (external)
<i>Ocimum sanctum</i> L.	Tulsi	Lamiaceae	Leaves	✓			Cancer, arthritis, oedema, venereal diseases, male fertility disorders, diabetes.	Juice (internal)
<i>Pergularia daemia</i> Forsk.	Veliparuthi	Asclepiadiaceae	Leaves	✓	✓		Skin diseases, cuts, wounds, bronchial asthma.	Juice (internal)
<i>Phyllanthus emblica</i> L.	Nelli	Euphorbiaceae	Flowers			✓	Scabies, sores, nostril haemorrhage, leucorrhoea, gonorrhoea, syphilis.	Juice (internal)
<i>Piper nigrum</i> L.	Milagu	Piperaceae	Floral buds	✓			Leprosy, skin diseases, cuts, burns, cough, cold, mouth ulcer.	Paste (internal)
<i>Punica granatum</i> L.	Madhulai	Punicaceae	Whole plant	✓			Scabies, salivation with nausea, antifertility, skin diseases.	Paste (external)
<i>Rauvolfia serpentina</i> L. Benth. Exkurz.	Sarpagandha	Apocynaceae	Root	✓			Stomach pain, to eliminate intestinal worms, to reduce blood pressure.	Paste (external)
<i>Rhinachanthus nasutus</i> L.	Nagamalli	Acanthaceae	Leaves	✓			Domesticated animal diseases, cuts.	Juice (internal)
<i>Ricinus communis</i> L.	Aamanakku	Euphorbiaceae	Seeds		✓	✓	Diabetes, rheumatic fever, malaria, typhoid, jaundice, enhances fertility.	Infusion (external)
<i>Solanum virginianum</i> L.	Kandangkattiri	Solanaceae	Flower		✓		Emesis, diabetes, diarrhoea, skin diseases, venereal diseases, ulcer.	Paste (internal and external)
<i>Tephrosia purpurea</i> L. Pers.	Kolunchi	Fabaceae	Root		✓		As astringent, obstruction of spleen, kidneys, pulmonary disease.	Decoction (internal)

<i>Terminalia arjuna</i> Wight & Arn.	Marutham	Combretaceae	Wood		√		Jaundice, malaria, dysentery, heart diseases, leprosy, liver complaints.	Ash (internal)
<i>Tragia involucrata</i> L.	Naipullu	Euphorbiaceae	Whole plant	√			Local swelling of hand and feet, headache, fever.	Juice (internal)
<i>Tribulus terrestris</i> L.	Nerinji	Zygophyllaceae	Flowers		√		Urinary troubles, heart diseases, blood purification.	Juice (internal)
<i>Vernonia cinerea</i> Less.	Mukkuttipuntu	Asteraceae	Whole plant		√		Skin diseases, constipation, fever, rheumatism, conjunctives.	Juice (internal)
<i>Vitex trifolia</i> L.F.	Karunochi	Verbenaceae	Leaves	√			Diarrhoea, Urticaria, cellulites, abscess, carbuncle, eczema.	Juice (internal)
<i>Wrightia tinctoria</i> (Robx) R.Br.	Veppalai	Apocynaceae	Leaves		√		Liver disorder, asthma, jaundice, piles.	Infusion (external)

Key: S.B – Snake bite, S.S – Scorpion sting, DB - Dog bite

These plants are also used to cure many other diseases such as cuts, wounds, injuries, eczema, scabies, burns itches, hair growth, diarrhoea, knee pain, cold, cough, fever, typhoid, malaria, headache, sore throat, ringworm, dry skin, stomach ache, abdominal pain, intestinal worms, ulcer, gout, piles, fistula, leprosy, urinary trouble, enhance fertility, vaginal discharge, venereal diseases, nostril haemorrhage, leucorrhoea, syphilis, heart diseases, kidney stones, liver complaints, asthma, swelling, inflammation, rheumatism etc.¹⁴

The species of *Rauvolfia serpentina* are being used as antidote for snake bite by tribals such as *Kadari*, *Malayali*, *Irular*, *Todar*, *Badagar* and *Kurumbar*.¹⁵ The *Paliyans* of Tirunelveli Hills of the Western Ghats use *Achyranthes aspera* and *Aristolochia indica* to cure various poisonous bites.¹⁶ The same report was obtained from various tribals of the Kolli Hills and from Yanadis of Nallamalai Hills.⁸ For snake bite around 15 plants like *Achyranthus aspera*, *Aristolochia indica*, *Moringa pterygosperma*, *Calotropis gigantia* etc., belonging 11 families were reported.¹⁷ They also revealed that roots were most frequently used (9 species), followed by leaf extract (4 species), latex and gum with one (1) species each. Bioactive compounds and phytochemicals such as gymnemic acid may be the reason for its antidote effect against snake bite, scorpion sting and dog bite.

Ethnobotanical exploration of Chitheri Hills of Dharmapuri District reported that *Anisomeles malabarica*, *Calotropis gigantea*, *Eclipta prostrata*, *Gloriosa superba*, *Moringa oleifera*, *Ricinus communis*, *Terminalia arjuna*, *Vernonia anthelmintica*, *Wrightia tinctoria* and *Aristolochia indica* are used for scorpion sting.¹⁸

Plants such as *Achyranthes aspera*, *Cyperus kyllingi*, *Datura stramonium*, *Moringa oleifera* and *Murraya koeinegii* were documented as potential medicinal plants against dog bite.¹⁹

CONCLUSION

The present study provides a base for enhancing scientist's attention towards consideration of ethnomedicinally important plants for snake bite, scorpion sting and dog bite. Traditional medicine practices are an important part of the primary healthcare system in the developing world. Herbal medicines are comparatively safer than synthetic drugs. Plant based traditional knowledge has become a recognized tool in search for new sources of drugs and nutraceuticals. Further studies have to be carried out to identify the phytochemicals of medicinal plants. Dissemination of the knowledge of medicinal plants and their usage would also improve the socioeconomic status of the tribes.

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