International Journal of Applied Bioresearch

Ethnomedicinal wisdom of Alagar Hills in Eastern Ghats, Tamil Nadu, India

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Published: 15 April, 2012; Vol. No.6:28-34; Online: www.bioresjournal.com/documents/ijab0022.

Since traditional herbal remedies are based on ancestral knowledge and empiric experiences of traditional healer, an ethnomedicinal survey was undertaken to collect information appeared to be useful for the research on medicinal plants of the Alagar Hills in Eastern Ghats, Madurai District of Tamil Nadu, during April 2011 – January 2012. The ancestral traditional knowledge of people and who have been using the native plants for the preparation of drugs and methods of their administration along with doses were recorded, collected through questionnaire as well as informal personal interviews during field trips. The exploration of ethnomedicinal plants utilized among the local people of Alagar hills were carried out for about 72 plant species of medicinal plants have been reported. The practical knowledge of people in herbal medicines reveals that they are capable of treating various diseases. Exploration and documentation of traditional medicine is essential for the future. Such study will be useful to understand the role and importance of the people in the conservation of medicinal plants of this area.

Biodiversity / Ethnobotany

India is known for its rich heritage of biological diversity, having already documented over 91,000 species of animals and 45,500 species of plants in its ten bio-geographic regions. Nearly 6,500 native plants are still used prominently in indigenous healthcare systems. Notwithstanding the fact that current knowledge of the number of species inhabiting the earth is still incomplete, estimates vary from 8 to 14 million species. Till date, about 1.7 million species have been described while many more await discovery (MoEF, 2008).

The use of plants to alleviate human suffering is as old as the evolution of human civilization itself. The authoritative works like Charaka Samhita, Susruta Samhita, Rigveda and Astang Hridaya marks the early base of herbal science in India. As many as 4000 plants are collectively mentioned in these early works. Added to this, India also possesses a great heritage of other ancient systems of medicine such as Ayurveda, Siddha, Unani and Homeopathy. Nearly 2500 species of plants are used in one way or other by some of these systems. In addition to these traditional systems, these also exists in India a vast knowledge of tribal and folk medicine, which utilize around 7500 species of plants as medicinal. Some of the ethnobotanically important species have also provided to lead for production of modern drugs by pharmaceutical companies infact, it is estimated that in India 90% of the prescriptions contain plant products (Husain and Akhtar, 1983).

This article is IJAB direct Email Submission.
Freely available on online through the IJAB open access www.bioresjournal.com.

Received: February, 27, 2012.
Accepted: March,18, 2012.

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This article contains supporting information online at www.bioresjournal.com/documents/ ijab0022

Ayurvedic and other traditional system of Indian medicines fully depend on wild plants for preparation of drug. Due to commercial exploitations and other activities like mining and quarrying, urbanization and fragmentation of habitats, the medicinal flora at a rapid rate. For survival of endemic species and their populations, more intensive management is needed. Such as systematic survey, status assessment, habitat management and restoration and captine breeding and allied strategies. In conservation efforts both *in situ* and *ex situ* management actions are needed.

Methodology

Study area

The study area of Alagar hills lies approximately between 77°30' and 78°20' longitude and 10°05' – 10°09' latitude. The elevation of the area of investigation ranges from 1000 to 3000 feet above sea level. Variations in the altitude and rainfall have a bearing on the vegetation in general. The floristic divisions of the area of investigation consist of dry deciduous forest, deciduous thorn forest, evergreen and grasslands. The native plants used for the preparation of crude drugs and their administrations along with doses were recorded through 2 field trips carried out in 7 days during 2011 – 2012.The medicinal values of plants were gathered from elder people of Valaiyar community. The voucher specimens were deposited (Diane Bridson and Leonard forman 1992) in Guru Nanak College, Herbarium (GNCH) Chennai. Plants were identified by using relevant floras (Gamble 1993 - 1994; Matthew 1982; Annamalai 2004).

Results and Discussion

The ethnomedicinal survey on Alagar Hills, Eastern Ghats, Madurai District observed that 72 plant species and describe the botanical Name, family, vernacular name, habit and medicinal uses mentioned in the table-1. According to Ganesan et al. (2009) reported the many plants that are used by the local people in Alagar Hills in Eastern Ghats.

Table -1: Medicinal Plants are used as Ethnomedicine

S.No	Botanical Name / Family	Vernacular Name	Parts Used / Remedy - Disease
1.	Abutilon indicum (L.) Sweet. (Malvaceae)	Thuthi	Leaf - Sinus Problems
2.	Acacia nilotica (L.) Willd ex Del. (Mimosaceae)	Karuvelam	Stem – Tooth Ache
3.	Acacia sinuate (Lour.) Merr. (Mimosaceae)	Chiyagai	Fruit – Sores, Scabies
4.	Acalypha indica L. (Euphorbiaceae)	Kuppaimeni	Leaf - Sores, Scabies
5.	Achyranthes aspera L. (Amaranthaceae)	Naayuruvi	Fruit - Stomach Disorders
6.	Acorus calamus L. (Araceae)	Vasambu	Rhizome - Digestive Systems
7.	Aegle marmelos Corr. (Rutaceae)	Vilvam	Fruit – Diabetics
8.	Allium cepa L. (Liliaceae)	Ulli	Bulb - Heat Reducer
9.	Aloe vera (L.) Burm.f. (Liliaceae)	Katthalai	Leaf - Heat Reducer
10.	Alternanthera sessilis (L.) R.Br. ex DC. (Amaranthaceae)	Ponnaganni	Leaf - Eye Sight
11.	Amaranthus spinosus L. (Amaranthaceae)	Mullukirai	Leaf - Heel Pain
12.	Amorphophallus paeoniifolius (Dennst.) Nicol. (Araceae)	Karaunaikilangu	Rhizome - Piles
13.	Ancardium occidentale L. (Anacardiaceae)	Andimaparuppu	Fruit - Sexual Stimulant

14.	Anisomeles malabarica (L.) R.Br. ex Sm. (Lamiaceae)	Sampalthumbai	Leaf - Cold, Cough
15.	Argemone mexicana L. (Papaveraceae)	Naikaduku	Latex - Skin Disease
16.	Azadirachta indica A. Juss. (Meliaceae)	Veamppu	Bark - Fever
17.	Bacopa monnieri (L.) pennell. (Scrophulariaceae)	Neerbrabmi	Leaf - Memory Booster
18.	Bambusa arundinacea (Retz.) Roxb. (Poaceae)	Moongil	Shoot tips - Energy Producer
19.	Borassus flabellifer L. (Arecaceae)	Panai	Fruit - Heat Reducer
20.	Canna indica L. (Cannaceae)	Kallvaalai	Flower - Eye Disease
21.	Capsicum annuum L. (Solanaceae)	Milagaai	Fruit - Head Ache
22.	Carica papaya L. (Caricaceae)	Pappali	Fruit - Eye Sight
23.	Cassia auriculata L. (Caesalpiniaceae)	Aavaarai	Leaf - Skin Disease
24.	Cissus quadrangularis L. (Vitaceae)	Pirandai	Leaf - Rheumatism
25.	Citrullus colocynthis Schrad. (Cucurbitaceae)	Kumitikaai	Fruit - Worm Killer
26.	Citrus limon (L.) Burm.f. (Rutaceae)	Narathaingaai	Fruit - Digestive Problems
27.	Cocos nucifera L. (Arecaceae)	Thenai	Endosperm - Snake Bite
28.	Coriandrum sativum L. (Apiaceae)	Kothamalli	Fruit - Cold, Cough
29.	Cucurbita moschata (Decne ex Lam.) Decne ex Poir. (Cucurbitaceae)	Poosani	Fruit - Obesity
30.	Cyperus rotundus L. (Cyperaceae)	Korai	Bulb - Sperm Producer
31.	Datura discoalor Bernh. (Solanaceae)	Karuoomathai	Flower - Sinus Problems
32.	Datura metal L. (Solanaceae)	Ummatham	Fruit - Worm Killer
33.	Delonix elata (L.) Gamble. (Caesalpiniaceae)	Vathamadaki	Leaf - Rheumatism
34.	Eclipta prostrata (L.) L. (Asteraceae)	Karisilanganni	Leaf - Hair Dye
35.	Elettaria cardamomum (L.) Maton. (Zingiberaceae)	Ellakai	Fruit - Stomach Disorders
36.	Eucalyptus globulus. Labill. (Myrtaceae)	Ecalptus	Leaf - Head Ache
37.	Ficus bengalensis L. (Moraceae)	Allamaram	Fruit - Digestive
38.	Ficus racemosa L. (Moraceae)	Kallathi	Fruit - Digestive
39.	Gloriosa superba L. (Liliaceae)	Kanthal	Rhizome - Impotent
40.	Gymnema sylvestre (Retz.) R.Br.ex Schutt. (Asclepiadaceae)	Sirukurichan	Leaf - Diabetics
41.	Hemidesmus indicus (L.) R.Br.	Nannari	Root - Heat

	(Asclepiadaceae)		Reducer
42.	Hibiscus rosa-sinensis L. (Malvaceae)	Chembaruthi	Flower - Hair Growth
43.	Justicia adhatoda L. (Acanthaceae)	Adadodai	Leaf - Cold, Cough
44.	Lawsonia inermis L. (Lythraceae)	Maruthani	Leaf - Hair Dye
45.	Lucas aspera L. (Lamiaceae)	Thumbai	Leaf - Fever
46.	Manihot esculenta C.Rantz. (Euphorbiaceae)	Kappaikilangu	Tuber - Edible
47.	Mimosa pudica L. (Mimosaceae)	Thottal siningi	Leaf - Wound Healing
48.	Morinda pubescens Sm. (Rubiaceae)	Manjanathi	Leaf - Rheumatism
49.	Moringa oleifera auct. (Moringaceae)	Murungaai	Leaf - Sperm Producer
50.	*Ocimum santum* L. (Lamiaceae)	Tulasi	Whole plants – Cold, fever
51.	Pergularia daemia (Forssk.) Chiov. (Asclepiadaceae)	Veeliparuthi	Latex - Wound Healing
52.	Phyla nodiflora (L.) Greene. (Verbenaceae)	Pooduthalai	Leaf - Anti-Dandruff.
53.	Phyllanthus amarus Schum & Thonn. (Euphorbiaceae)	Killanelli	Leaf - Jaundice
54.	Phyllanthus emblica L. (Euphorbiaceae)	Nelli	Fruit - Digestive Agent
55.	Piper betle L. (Piperaceae)	Vettilai	Leaf - Digestive
56.	Piper longum L. (Piperaceae)	Thipli	Fruit - Cold, Fever
57.	Piper nigrum L. (Piperaceae)	Milagu	Fruit - Cold, Fever
58.	Pithecellobium dulce (Roxb.) Benth. (Mimosaceae)	Kodukkapuli	Fruit - Digestive
59.	Plectranthus amboinicus (Lour.) Spreng (Lamiaceae)	Omavalli	Leaf - Cold, Cough
60.	*Plumbago zeylanica* L. (Plumbaginaceae)	Vellaisidhiraimulam	Root - Diarrhoea, Skin Diseases
61.	Prosopis juliflora DC. (Mimosaceae)	Cheemaikaruvai	Fruit - Digestive
62.	Psidium guajava L. (Myrtaceae)	Koyya	Fruit - Digestive Agent
63.	Punica granatum L. (Punicaceae)	Madhulam	Fruit - Blood Purifier
64.	Ricinus communis L. (Euphorbiaceae)	Aamanakku	Leaf - Muscle Swelling
65.	Syzygium cumini (L.) Skeels. (Myrtaceae)	Naval	Fruit - Diabetics
66.	Tectona grandis L.f. (Verbenaceae)	Tekku	Leaf - Bone Joint
67.	Terminalia arjuna (Roxb.) ex DC.Wight & Arn. (Combretaceae)	Maruthu	Bark - Stomach Ulcer
68.	Tinospora cordifolia (Willd.) Miers. ex Hook &Thomson.	Sangivee	Leaf - Cold, Cough, Fever

	(Menispermaceae)		
69.	Trichosanthes cucumerina L. (Cucurbitaceae)	Pudal	Fruit - Digestive
70.	Tridax procumbens L. (Asteraceae)	Thathasedi	Leaf - Wound Healer
71.	Vetiveria zizanioides (L.) Nash. (Poaceae)	Vetriver	Root - Hair Growth
72.	Withania somnifera (L.) Dunal. (Solanaceae)	Amukara	Tuber - Sperm Producer

1. *Phyllanthus emblica* L. (Euphorbiaceae); 2.*Bacopa monnieri* (L.) pennell. (Scrophulariaceae); 3. *Mimosa pudica* L. (Mimosaceae);); 4. *Ficus racemosa* L.; (Moraceae);5. *Delonix elata* (L.) Gamble (Caesalpiniaceae); 6. *Gloriosa superba* L.(Liliaceae)

Plants form the basis of life to explore how plants are used for such things as food, shelter, medicine, clothing, hunting, and religious ceremonies because medicines are used to fight against disease, fuel wood for burning, food and forage for our cattle, flowers for celebration, valuable wood for making agricultural tools (Saqib and Saltdon, 2005).

Nowadays, medicinal technology is well developed. This development is good for human beings to have good health and better quality of life. However, the cost of many medicines is too high for most people residing in the rural areas. Many people, therefore, still use traditional medicinal plants for curing diseases. Knowledge of medicinal plants provides people with low cost health care, and this knowledge is passed through generations (Seewapong Chamratpan and Sam-ang Homchuen, 2005).

With the passage of time, they have developed a great deal of knowledge on the use of plants and plants products in curing various ailments. They have a deep belief in their native folklore medicine for remedies and they rely exclusively on their own herbal cure (Albert Sajem and Kuldip Gosai, 2006).

Traditional medical knowledge of medicinal plants and their use by indigenous cultures are not only useful for conservation of cultural traditions and biodiversity but also for community healthcare and drug development in the present and future (Pei, 2001).

In fact, medicine and botany have always had close ties. Many of today's drugs have been derived from plant sources. The recorded medicinal plants were used mainly for fever, cold, menstruation problems, scabies, various types of pain and inflammations. Knowledge about the use of ethno-medicinal resources and the resources themselves appeared to be threatened by rapid changes in traditional lifestyles and cultural practices. (John Warui Kiringe, 2006).

There is great need to study and document this knowledge properly. If the people of this area trained to manage and protect their natural resources from biotic interferences, their area will then remain green, and will continue to present itself as a gift for future generations (Saraswathy, 2003).

Summary and Conclusion

The Alagar Hills in Eastern Ghats, Madurai District of Tamil Nadu, India and its vegetation are important because it serve as a migratory route for many tropical, humid floristic elements to the Eastern Ghats. However, a number of anthropogenic factors have adverse environmental impact on the flora and fauna habitats. In many cases, over exploitation of a particular species can also lead to the incidental disappearance of other non - targeted species. The potential value of majority of wild plants is not known to scientists or not fully exposed. If it does not conserve these natural resources, it will lose the opportunity to exploit their uses as medicinal plants or as a potential breeding material.

It can be concluded from the study that local people of Alagar Hills who have rich traditional knowledge and documentation of this knowledge has provided novel information from the area. They still depend on the plants for medicinal purposes and are very much concerned about their degradation in wild as they now have to travel even more far to collect these plants. The incoming of roads and coming up of the area as an important tourist destination has allured the younger generation towards market economy, this certainly will have larger implications. Thus, the present documentation of traditional knowledge from an area where novel information has been generated will not only provide recognition to this knowledge but will also help in its conservation vis-à-vis providing pharmacological leads for the betterment of human society.

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