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Documentation of Some Medicinal Plant Species from Goa

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Abstract

An ethno botanical study involving the collection of traditional knowledge of various medicinal plants was conducted in the year 2012-13 from South Goa. Besides taxonomic identification, various other parameters such as the ailments, plant part/s used method of preparation, method of administration and ingredients added were also collected.

The data was collected using interview and questionnaire. A total of 50 medicinal plant species belonging to 20 families and 46 genera were collected and studied for treating 18 human aliments. The study revealed that the most common method of preparation of medicine is decoction, followed by paste and poultice. The people of the state have great faith in effectiveness of medicinal herbs. This traditional system of medicine is fast disappearing due to relatively low income in this tradition, advances in allopathic medicines and scarcity of written documents. The objective of this study was to document the knowledge of traditional home remedies for health care in Goa.

Key Words: Ethnobotany; Medicinal plants; Traditional healers; Indigenous knowledge; Herbal remedy.

Introduction

India is a place of great bio-diversity with its rich source of medicinal plants distributed among the different geographical and ecological environment within the country. The country has an enriched history regarding the use of traditional medicine from herbal and non-herbal sources which is well documented and exhaustively practiced. The 'Atharva Veda', 'Charaka Samhita' and many other similar documents are compilations of the enriched folk medicine and their uses (Rout *et al*., 2009). In India, it is reported that traditional healers use more than 2500 plant species and 100 species of plants serve as regular source of medicine (Pie, 2001).

Similarly it is noted that traditionally people from all over the world use plants to cure different ailments. Locals from different communities have their own gifted knowledge regarding these plants and their inherent medicinal properties. These people are represented as the "local practitioners" or "traditional healers" residing in the interior of the villages.

These Traditional healers are found in most societies. They are often part of a local community, culture and tradition, and continue to have high social standing in many places, exerting influence on local health practices. It is therefore worthwhile to explore the possibilities of engaging them in primary health care and training them accordingly (WHO, 1978). The advantage in preferring traditional medicine is that traditional healers are found within a short distance and are familiar with the patient's culture and the environment and also the costs involved in the treatment are negligible (Rinne, 2001). The indigenous healers 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).

It is still not clear how man got medicinal knowledge of plants even though all the ancient civilizations used a variety of plants for curative purpose (Kamat and Kamat, 1994). Indigenous knowledge of using medicinal plants for healing human ailments is, however, in danger of gradually becoming extinct, because this knowledge is passed on orally from generation to generation without the aid of a writing system and because many traditional healers do not keep written records (Kaido *et al*., 1997). So Ethno botany and ethno medical studies are today recognized as the most effective method of identifying new medicinal plants or refocusing on those plants reported in earlier studies for the possible extraction of beneficial bioactive compounds (Thirumalai *et al*., 2009). Hence such research is essential to find and document important medicinal plants.

Such studies explore the medicinal plants used by the local people for the treatment of various ailments, and the resulting record of these plants and their uses provides baseline data for future phytochemical and pharmacological studies (Wintola, 2010). Over the past decade by looking at the demand for medicinal plants, there has been a dramatic increase in this area. However such knowledge would be contemporary and alternative medicine in both developing and developed countries (Lee, 2008).

The present study was carried out in Goa, which is represented as a smallest state in India. The rural people in Goa have rich knowledge of medicinal plants and their uses. The rural areas of Goa are inhabited by different communities like Kunabi, Velip, Gawde, Chambhar, Mhar, Kansar *etc*. most of which are socio-economically backward who used a large number of plants for the treatment of various diseases (Estbeiro, 2001). In the present study, few native medicinal plants are documented that have promising ability to cure diseases like digestive problems, jaundice, heart related disorders, eye, ear, throat problems, stomach disorders, diabetics, *etc*. The documentation is done based on the personal contacts with various people of different age groups in different parts of Goa.

With industrialization, modern education system, invasion of western culture, especially Portuguese culture and gradually growing urbanization, the original traditional knowledge base system is eroding (Naik *et al.,* 2014). The Goan people are under fear that this knowledge is vanishing and hence such documentations are essential in order to preserve this valuable knowledge. By looking at all these objectives the present topic was selected to document the medicinal plant species of Goa.

Methodology

Goa is a state located in the West India region of the Konkan, it is bounded by the state of Maharashtra to the north, and by Karnataka to the east and south, while the Arabian Sea forms its western coast. Goa encompasses an area of 3,702 km^2 (1,429 sq m). It lies between the latitudes 14°53′54″ N and 15°40′00″ N and longitudes 73°40′33″ E and 74°20′13″ E. Tourism is Goa's primary industry and hence modernization of the state is very frequent. So it is becoming essential to preserve the ancient knowledge and wealth of the state.

Data was collected by visiting different villages in Goa. Locals were interviewed using pre-designed questionnaire. Method for preparation of medicine was listed out. The information on medicinal plants was also collected from the local practitioners and the plant species used by them were confirmed after collecting them from the field. All the plant species were brought to the laboratory and taxonomically identified using various bibliographies.

Results and Discussion

During the study period, 50 medicinal plant species belonging to 20 families and 46 genera were collected. It includes plants which has potential to treat 18 different human aliments. In all, a total of 56 preparations for different ailments have been listed in the current study. Brief information on the local name, botanical name, and Family of the medicinal plants undertaken in the study is presented in Table 1. It was observed that the local practitioners use different parts of the plants like root, stem, leaves, fruits or whole plant (Fig. 1) to prepare herbal remedy. These plants are used either singly or in combinations with other plant/s. The locals believe that the herbal medicine prepared by

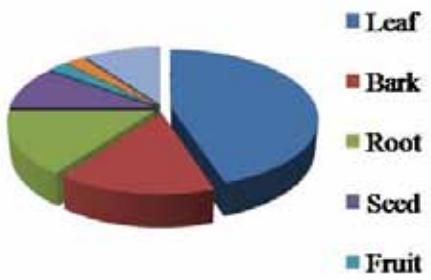

Fig. 1. Plant parts used by locals for various ailments.

using combination of plants is more effective than medicine prepared by using single plant. The present study reveal that the plants identified in the study are used to cure various ailments *viz.,* cough, diarrhoea, dysentery, wound healing, diabetes, jaundice, fever, vomiting, skin diseases, toothache, menstrual disorder, hypertension, headache, *etc.* Different vehicles *viz.,* water, par-boiled rice water, coconut oil, coconut water, and milk are known to enhance the efficacy of the medicine and are used for the preparation of herbal remedies. As per local information, majority of the herbal medicines are prepared by using par boiled rice water as a medium to prepare the herbal extract followed by water, coconut oil coconut water, milk and curd. According information collected mostly the medicine is prepared in the form of decoction followed by paste and poultice (Fig 2). It was observed that people from few villages never visit a certified doctor to cure their illness and prefer the local practitioners from their village. The documentation studies will help to conserve the valuable knowledge for posterity or else will be lost, due to modernization and sudden move towards the allopathic medicines.

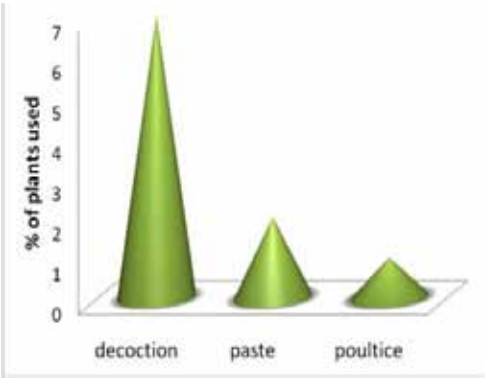

Fig. 2. Mode of preparation of medicine.


Tabernaemontana orientalis *Rauvolfia serpentina* *Eclipta prostrata*


Sonneratia alba *Bixa orellana* *Ricinus communis*

Fig. 3. Some plant species used for medicinal purpose.

Table 1. List of documented medicinal plant species, their local names, botanical names and families.

Family	**Botanical name**	**Local name**	**Part used**	**Medicinal Use**
Annonaceae	*Annona reticulata* L.	Sitaphal	Leaves	Stomach ache
Annonaceae	*Polyalthia longifolia* Sonn.	Ashok	Leaves, fruit	Fever
Anacardiaceae	*Mangifera indica* L.	Aamo	Leaves	Diarrhea
Anacardiaceae	*Spondias mangifera* L.	Aamado	Bark	Diarrhea
Anacardiaceae	*Anacardium occidentale* L.	kaju	Bark	Stomach ache
Anacardiaceae	*Buchanania lanzan* Spreng.	Char	Fruit	Fever
Amaranthaceae	*Aerva lanata* (L.) Juss.	Mutkha-dyache zhad	Fruit	Kidney stone
Amaranthaceae	*Achyranthes aspera* L.	Aagado	Leaves	cold
Apiaceae	*Anethum graveolens* L.	Shepu	Leaves	Loss of appetite
Acoraceae	*Acorus calamus* L.	Vaikhand	Rhizome	Stomach ache
Acanthaceae	*Justicia adhatoda* L.	Adulsa	Leaves, flower	Cold
Acanthaceae	*Andrographis paniculata* (Burm.f.) wall.	Kirayte	Leaves	Stomach ache
Asclepiadaceae	*Calotropis gigantea* (L.) W.T.Aiton	Rui	Leaves, root	Wound, sinus
Asparagaceae	*Asparagus racemosus* Willd.	Shatavari	Leaves	Cold
Agavaceae	*Agave americana* L.	Ghaypat	Leaves	Wound
Apocynaceae	*Holarrhena antidy-senterica* (L.) Wall.	Nagalkudo	Leaves, bark	Wound and dysentery
Apocynaceae	*Alstonia scholaris* (L.) R. Br	Saton	Bark	Stomach ache
Apocynaceae	*Nerium odoratum* Lam.	Kaner	Root	Sinus
Apocynaceae	*Carissa spinarum* L.	Karvanda	Root	Wound
Apocynaceae	*Catharanthus roseus* (L.) G. Don	Sadafuli	leaves	Diabetes
Apocynaceae	*Rauvolfia serpentina* (L.) Benth. ex Kurz.	Aatki	Root	Stomach ache
Apocynaceae	*Tabernaemontana orientalis* R.Br.	Anant	Root	Tooth ache

Asclepiadaceae	*Hemidesmus indicus (*L.) R.Br	Dudhvel	Entire Plant	Cold and fever
Araceae	*Amorphophallus paeonii-folius* (Denns) Nicolson.	Suran	Rhizome	Stomach ache
Araceae	*Colocasia esculenta* (L.) Schott	Aalu	Rhizom	Wound
Asteraceae	*Chromolaena odorata* L.	Ghanyari	Leaves	Cold, stomach ache
Asteraceae	*Eclipta prostrata (L.)* L.	Meko	Leaves	Hair fall control
Asteraceae	*Artemisia parviflora* L.	Manpatri	Leaves	Stomach ache
Asteraceae	*Chrysanthemum indicum* L.	Shevanti	Leaves	Stomach ache
Achariaceae	*Hydnocarpus wightiana* Blume.	Khashta	Fruit	Skin infection
Bixaceae	*Bixa orellana* L.	Kesri	Pods, fruit	Dog bite
Bromeliaceae	*Ananas comosus* (L.) Merr.	Ananas	fruit	Cold
Caricaceae	*Carica papaya* L.	Papaya	seeds, leaves	High blood pressure and dengue
Cucurbitaceae	*Benincasa hispida* Cogn.	Kuvalo	Fruit	Stomach ache
Cucurbitaceae	*Cucurbita maxima* L.	Dudhi	Fruit	Stomach ache
Cucurbitaceae	*Coccinia grandis* (L.) J.Voigt	Tendla	Fruit	Wound
Cucurbitaceae	*Cucumis sativus* L.	Tovshe	Fruit	Wound
Cucurbitaceae	*Momordica dioica* Roxb. ex Willd.	Fagla	Fruit	Intestine related pro-blems/pain
Cucurbitaceae	*Luffa acutangula* (L.) Roxb.	Ghosale	Fruit	Intestine related pro-blems/pain
Cucurbitaceae	*Cucumis trigonus* Roxb.	Karit	Fruit	Cold, Fever
Combretaceae	*Terminalia chebula* Retz.	Hardo	Fruit	Wound
Combretaceae	*Terminalia arjuna* (Roxb.) Wight & Arn.	Arjun	Bark	Wound
Combretaceae	*Terminalia tomentosa* Willd.	Maharat	Bark	Wound

Combretaceae	*Terminalia paniculata* Roth.	Kindal	Bark	Wound
Combretaceae	*Terminalia catappa* L.	Desi badam	Seeds	Cold
Combretaceae	*Combretum indicum* L.	Madhumalati	Flowers	Insect bite
Combretaceae	*Calycopteris floribunda* (Roxb.) Lam.	Huski	Leaves	Insect bite
Crassulaceae	*Kalanchoe pinnata* (Lam.) Pers.	Panfuti	Leaves	Cold
Caesalpineae	*Wagatea spicata* Dalz.	Wagate	Leaves	Insect bite
Caesalpineae	*Tamarindus indica* L.	Chinch	Leaves	Stomach ache

References

1. **Estbeiro C.** 2001. A preliminary survey of medicinal plants from Goa. M.Sc. Dissertation, Goa University.
2. **Kaido TL, Veale DJH, Havlik I, Rama DBK.** 1997. Preliminary screening of plants used in South Africa as traditional herbal remedies during pregnancy and labour. *J Ethnopharmacol* 55: 185-191.
3. **Lee S, Xiao C and Pei S.** 2008. Ethnobotanical survey of medicinal plants at periodic markets of Honghe Prefecture in Yunnan Province, SW China. *J Ethnopharmacol* 117(2): 362-377.
4. **Naik LS, Puttaiah ET and Nag A.** 2014. Ethonobotanical Studies of some Plants included in Folk Medicines of Goa. *International J of Basic and Applied Sci* 3(1): 6-13.
5. **Pie SJ.** 2001. Ethnomedicinal approaches of traditional medicine studies: some experiences form Asia. *Pharmaceuticals Biol* 39: 74-79.
6. **Rinne E.** 2001. Water and Healing - Experiences from the Traditional Healers in Ile-Ife, Nigeria. *Nordic J of African Studies* 10: 41-65.
7. **Rout SM, Choudary KA, Kar DM, Das L and Jain A.** 2009. Plants in Traditional Medicinal System-Future Source of New Drugs. *Intl J Pharm Pharm Sci* 1(1): 1-23.
8. **Kamat SV and Kamat VP.** 1994. Medicinal plants of Goa and their uses, a survey and documentation for WWF India.
9. **Thirumalai T, Kelumalai E, Senthil Kumar B, David E.** 2009. Ethnobotanical study of medicinal plants used by the local people in Vellore District, Tamil Nadu, India. *Ethnobotanical leaflets* 13: 1302-1311.
10. **WHO** 1978. The promotion and development of traditional medicine. Report of a World Health Organization Meeting. Technical Report Series 622 Geneva.
11. **Wintola OA, Afolayan AJ.** 2010. Ethnobotanical survey of plants used for the treatment of constipation within Nkonkobe Municipality of South Africa. *Afri J of Biotechnol* 9(45): 7767-7770.
12. https://en.wikipedia.org/wiki/Goa
13. www.ipni.org/ipni/query_ipni.html