

ETHNOBOTANICAL STUDIES ON THE FAMILY BORAGINACEAE AMONG TRIBALS IN KERALA

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ABSTRACT

Ethnobotany is the branch of science that embraces the study and evaluation of interdependence among humans and the flora in all facets of life. Currently ethnobotany have stretched out its zone of study into diverse spheres like archaeology, anthropology, economics, ecology, medicine, cultural, religious and many more directions. A significant portion of the human race still depends on the traditional treatment systems for many ailments. The present study is an attempt to grab and document ethnobotanical information's concerning the family Boraginaceae. 20 tribal groups across the state Kerala have been screened for grasping the ethnobotanical figures. A total of 6 members of the family Boraginaceae are used by the 10 tribal groups across the state of Kerala for treating various ailments. Considering the varied treatment modalities that have been espoused by discrete tribal clutches, the distinct medicinal formulations are practiced. The study have collected and recorded significant ethnobotanical data that will be a footing stone for new research and innovations in drug industry.

Keywords: Ethnobotany, Boraginaceae, Kerala, Tribal, Indigenous.

Introduction

J.W. Harshberger (1895) introduced the term ethnobotany to specify plants utilized by the indigenous populations. It comprises the study and assessment of interrelationships between humans and the flora in all aspects of life. Schultes (1962) explained ethnobotany as “the study exists among people of primeval societies and their plant environment”. Now a days ethnobotany have extended its area of study into various spheres like archaeology, anthropology, economics, ecology, medicine, cultural, religious and several other directions. The research aspects of ethno pharmacological studies are overwhelming, as it is an ambidextrous system in therapeutics for decades (Abbasi *et al.*, 2010). In the present scenario also, a considerable portion of the human population rely on the indigenous treatment methods for many ailments (Albuquerque *et al.*, 2012).

The family Boraginaceae Juss., Gen. Pl. [Jussieu] 128 (1789), nom. cons., usually termed the borage or forget-me-not family clamps 145 genera that embraces around 2,000 species with a universal distribution (Luebert *et al.*, 2016). Based on the APG IV system of classification (Angiosperm Phylogeny Group, 2016), the family Boraginaceae counted as an

individual family of the order Boraginales among the Asterids. According to George Bentham and Joseph Dalton Hooker, Boraginaceae is included in the cohort Polemoniales among the series Bicarpellatae (Subrahmanyam, 2009). The state Kerala harbours 9 genera with 26 species of the family Boraginaceae (Sasidharan, 2012).

The state Kerala is well known for rich biodiversity and its traditional systems of medicine. The tribals in various parts of the state harbours indigenous treatment modalities grounded on plant based formulations. Though lot of ethnobotanical information's are available, the authentic documentation is very little. Also the younger generations of these indigenous groups are almost unaware about their rich ethnobotanical experience. The present study aims to document the available traces of ethnobotanical information among the tribals in Kerala. The study points to explore mainly the ethnobotanical data related to the members of the family Boraginaceae. Many of the Boraginaceae members are a part of indigenous treatment modalities.

Methodology

Tribal groups are distributed among various districts around the state. Simple random sampling is used to select the tribal groups for

the study. The selected tribal groups are explored and ethnobotanical information's are collected mainly through designed interviews, discussions and conversations with key informers. Field notes have been prepared concerning the information's gathered. The collected ethnobotanical data comprises vernacular name of the plant, ethno botanical uses, plant parts used, mode of preparation and treatment methods and medicinal formulations.

Results

The present study documented the traditional usage pattern of the members of family Boraginaceae among 20 tribal groups across the State of Kerala. The tribal groups explored

for gathering ethnobotanical information are Adiyas, Eravallans, Hill pulayas, Irulars, Kadars, Karimaplan, Kattunaikan, Koraga, Kurichyar, Kurumbars, Malasars, Malamalasars, Malavettuva, Maratti, Mavilan, Mudugars, Mullukruma, Muthuvans, Paniyas and Urali. Altogether, 6 members of family Boraginaceae are used by the 10 tribal groups across the state of Kerala for treating various ailments. Based on the diverse treatment modalities that have been adopted by different tribal groups, the different medicinal formulations are used. The details of tribal groups and plant used are given in Table 1.

Table 1: Details of plants in the family Boraginaceae used by tribal groups

Sl. No.	Plants	Vernacular name/Common name	Use	Parts used	Tribal group
1.	<i>Rotula aquatica</i> Lour.	<i>Kallurvanchi</i>	Stones in the Kidney, Urinary problems	Roots	Paniayas, Kadars
2.	<i>Heliotropium indicum</i> L.	<i>Thekkida</i>	Skin infections	Whole plant	Kurichyar
3.	<i>Heliotropium keralense</i> Sivar. & Manilal	<i>Thekkada</i>	Scorpion bites	Leaves	Kurichyar
4.	<i>Cordia wallichii</i> G. Don	<i>Avi, Puzhventhekkku, Kokkamani, Periyaviri, Virimaram, Cheruthekkku</i>	Edible	Fruits	Eravallans, Irulars, Kadars, Kurumbars, Malamalasars, Malasars, Mudugars and Muthuvans
5.	<i>Cordia obliqua</i> Willd.	<i>Veerusham, Pasakamaram, Viri</i>	Edible, medicine	Bark, Fruits	Eravallans, Irulars, Kadars, Kurumbars, Malamalasars, Malasars, Mudugars and Muthuvans
6.	<i>Cynoglossum zeylanicum</i> (Vahl ex Hornem.) Thunb. Ex Lehm.	<i>Mudichilooram</i>	Diarrheal infection and gastrointestinal ailments	Roots	Kurichyar

Discussion

The indigenous treatment modalities that have been practiced in various ethnic groups have a long history and it is the footing of many drug inventions (Leonti *et al.*, 2003). The treatment modalities of plant origin is the premier health care method for a major portion of the population and it is well established that around 2500 species of plants have medicinal properties (Choudhary *et al.*, 2008). The

present inquiry among tribals has explored much indigenous information about their diverse treatment modalities. The study surveyed a total of 20 tribal groups distributed across the state of Kerala. The study documented the ethno botanical experiences of 6 Boraginaceae family members. Majority of the tribal groups are using medicinal formulations of plant origin as a primary treatment method for various ailments even

today. The indigenous populations in the surveyed area are using plant based medicinal formulations for treating conditions like kidney stones, skin infections, scorpion bites, diarrheal infection, gastrointestinal ailments and urinary problems. These results are *at par* with previous ethnobotanical explorations (Dutta and Dutta, 2005; Mahmood, *et al.*, 2011).

Though these treatment modalities are purely rooted on plant based formulations, a scientific authentication is needed. Hence a thorough study in the field of phytochemistry and cytotoxicity of the plant formulations used in the treatment methods are required to reveal the scientific aspects. The knowledge explored will be a footing stone for new drug innovations. Many of these indigenous treatment modalities confined to these tribal groups are not documented properly. Government projects on the tribal settlements uplifted the social status of the group. Establishment of primary health centres in tribal settlements leads to a change in the selection of treatment methods from traditional to the modern allopathic medicine. Moreover the information's related to the indigenous treatment modalities are narrowed to the elderly population only. However the young generations are almost unaware of the traditional modes of treatment. Hence to document the ethnobotanical information's is a premier prerequisite for future reference and new progressive research explorations.

At national level, similar ethnobotanical inquires have been done in various parts of the country in Bhoja tribe of Bihar and Pauri

Garhwal districts, U. P. (Maheshwari and Singh, 1984), in Kheri district, U. P. by Tharus (Maheshwari *et al.*, 1980), in Haryana (Morni and Kalesar) (Jain, 1984). In Eastern Rajasthan Upadhyay *et al.*, (2010) conducted ethnopharmaco-statistical ethnobiological inquires, also pharmacognosy studies on *Cassia* sp. have been done (Sharma *et al.*, 2012a and 2012b). Ethnopharmacological applications in the field of drug development were explored by Farnsworth (1990). Studies using drugs of plant origin have been carried out on diseases like leprosy, infections on the skin, malaria, gastrointestinal disorders etc., by Upadhyay *et al.*, (2008); Saini *et al.*, (2010) and Sharma and Kumar (2011 and 2012) with commendable outcomes.

Conclusion

All the time the new ethnobotanical information's engrained on plant based medicinal formulations, related to the treatment of various infirmities, is an asset to the modern medicinal innovations. The present study gathered and documented the ethnobotanical usage of the family Boraginaceae among the tribal groups across the State of Kerala. Ethnomedicinal studies provide new vistas in indigenous method of applications and potential of plant based active components in treating various ailments. The present study engenders the imminent need of such studies for new drug development and allied applications with lesser or minimized side effects.

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