



Medicinal plants in sacred groves: A Nature's Gift, as a remedy for human ailments

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Abstract

The present study on medicinal plants on selected sacred groves of Kozhikode district shows that, there are about 31 plant species which are belonging to 31 genera and 18 families are possessing various medicopotentialities for curing many ailments. The local people who conserve these groves and they are also having a very good knowledge of such medicinal plants. They protect such medicinal plant wealth in the isolated patches of ecosystems like sacred groves. In this context sacred groves are the site for the *in-situ* conservation of highly valuable flora and fauna.

Introduction

Sacred groves are sanctified patches of forests protected by the strength of religious beliefs as abode of Gods and Goddesses. It is believed that the existence of sacred forest dates back to several thousands of years when human society was in the primitive stage of development (Ramakrishnan *et al.*, 1998). The historical link of the sacred groves are traced to the pre-agricultural, hunting and gathering stage of societies, before human being had settled down to raise livestock's or till land (Haritha, *et al.*, 2014). Hence the concept of virgin forest is believed to be of pre-Vedic period, *i.e.*, about 3000 to 5000 years. In India, in spite of increase in human population, sacred groves have survived under a variety of ecological situations (Nayar, 1997).

Sacred groves are also considered as a social institution or a part of the taboos that evolved historically over several generations to provide a site for culturally crucial social interactions (Boojh & Ramakrishan, 1983). The ancestral practices of animism with the central focus on the worship of forest patches regarded them as the sacred abode of various Gods/deities. Thus nature worship has been a key force in determining human attitudes towards conservation and sustainable utilization of natural resources (Chandrashekara & Sankar, 1998). Sacred groves throughout the world are associated with a range of traditional and cultural values related to forests, rituals and taboos. However, conservation practices and control over extractive activities in sacred groves vary in different communities and regions (Israel, *et al.*, 1997).

Materials and Methods

Study area: The present study is confined to two unexplored sacred groves such as Kanangattukavu and Kavumkara Kozhikode district, Kerala (Pls. 1-3), Kozhikode a city in the state of Kerala in Southern cost. The city of Kozhikode is 410 kilometers north of the state capital Thiruvananthapuram. It is located at approximately 11.25°N 75.77°E, in which the rainy season is during the South West Monsoon, which sets in the first week of June and extends up to September. The North East Monsoon extends from the second half of October through November. The average annual rainfall is 3266 mm and the best weather is found in towards the end of the year, in December.

Kanangadkavu: Kanangattukavu is one of the sacre located in Kozhikode District. It is characterized by the increased diversity of shrub and herb species. This sacred grove is located on the South-East region of the Ramanattukara municipality and covers an area of approximately 0.121 ha. This sacred portion of land is devoted to regarded as a 'Nagakavu'. Kanangattukavu is maintained by the members of Kanangad family generation after generation. They conduct *Saktheyyam* and *Kavutheendal* in each year to please the 'Nagaraja'.

Kavumkara: Kavumkara sacred grove is another sacred grove of Kozhikode District. This sacred grove is located on the South-West region of Ramanattukara municipality. This area is maintained by members of Kavumkara family and they retain this as a well managed the area for years. This sacred grove covers an area of

about 0.2023 ha and is featured by its increased diversity of trees, shrubs as well as herbs. This area forms one of the most tree covered area of Ramanattukara. The maintainers of this sacred grove conduct *Saktheyyam* in every year as devotion to the 'Nagaraja' because it is believed as a region devoted to the inhabitation of Nagas. Hence, this sacred grove belongs to the category of 'Nagakavu'.

Documentation: The present study was based on an extensive survey and field observations during the year December 2016- February 2017. In this study an attempts were made to document and analyze medicinally important plants among the vegetation cover of selected sacred groves of Kozhikode district, Kerala. The documentation was mainly based on the field observation, discussions with local peoples as well as scrutinizing the literature review (Gamble & Fischer, 1915; Hooker, 1872-1897). During the field visits, the plant specimens were collected at different reproductive stages to prepare herbarium specimens. The collected specimens were identified taxonomically with the help of available floras and literature. The nomenclature of each species has been brought up to data as per the rules given in the International Code of Nomenclature (ICN). The specimens were processed for the preparation of Herbarium by standard methods (Santapau & Henry, 1973). The voucher specimens were deposited in the Herbaria of PG & Research Department of Botany, St. Joseph's College, Calicut (DEV) for future reference.

Plate -1

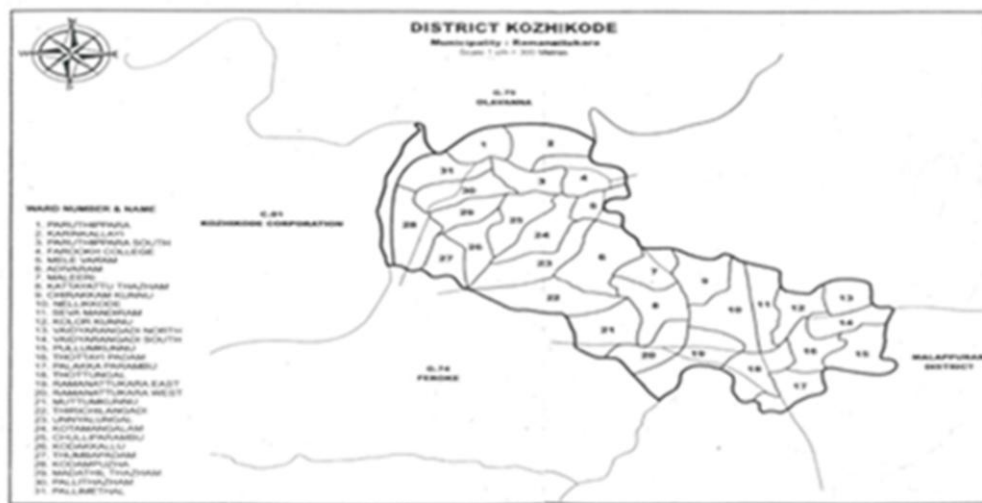


A) Map of Kerala State



B) Map of Kozhikode District

Plate -2



A) Map of Ramanattukara Municipality



B) Image of Kanangad kavu Sacred grove



C) Image of Kavumkara Sacred grove

PLATE – 3



A) *Abrus precatorius* L.



B) *Acmella calva* (DC.) R.K. Jansen



C) *Adenanthera pavonina* L.



D) *Aegle marmelos* (L.) Correa



E) *Ageratum conyzoides* L.



F) *Alternanthera bettzickiana* (Reg.) Voss.

Result and Discussion

The present survey also documents some medico-potential members from the study area. These are about **31** plants belonging to **31** genera and **18** families. Which possess various medico-potentialities for curing many ailments. The local people who conserve these groves are having very good knowledge of such medicinal plants. They protect such medicinal plant wealth in the isolated

patches of ecosystems like sacred groves. In this context sacred groves are the site for the *in-situ* conservation of highly valuable flora and fauna. The analysis of different life forms of medicinal plants in the study area reveals that, herbs are dominant (15 in nos.) followed by shrubs (8 in nos.), climbers (4 in nos.) and trees (4 in nos.) (Fig. 1).

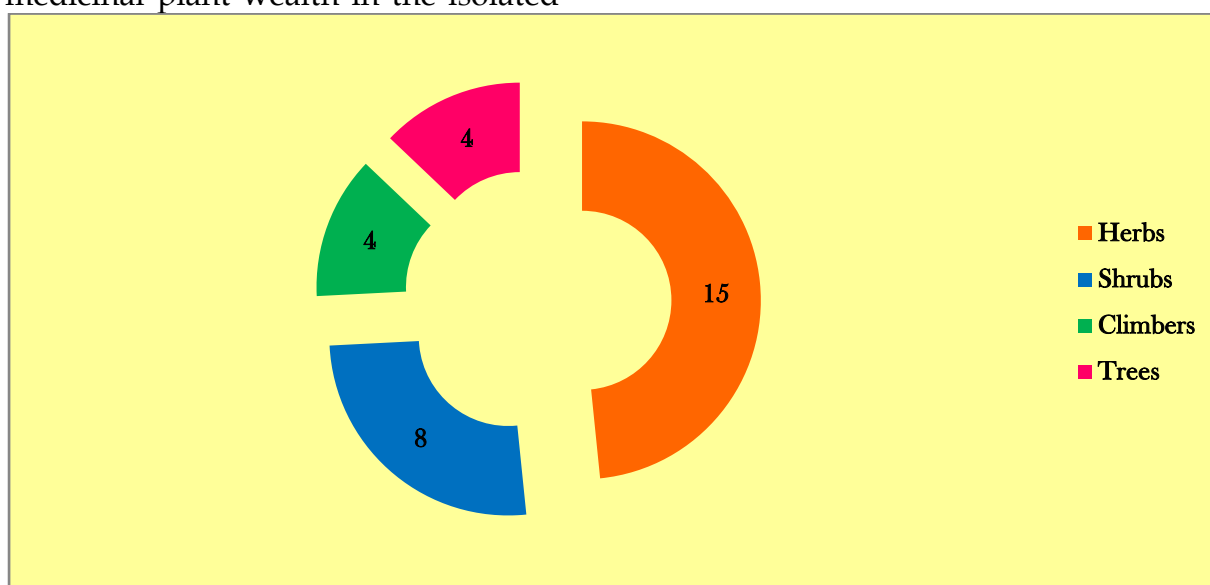


Fig. 1 : Life form analysis of medicinal plants in the study area

Similar studies were conducted by Behera *et al.* (2015), They studied medicinal flora of Penusila Narasimha sacred grove, Eastern Ghats, Nellore district, Andhra Pradesh, India. According to them there were 160 species of potential medicinal plants belonging to 138 genera and 71 families. Similarly Ethno-floristic survey in sacred groves of Pudukottai district, Tamil Nadu was conducted by Anbarashan *et al.* (2010). Their results also revealed that, there are about a

total of 89 species of medicinal plants belonging to 51 families were documented. Out of these Fabaceae was dominant family with 5 species followed by Mimosaceae, Apocynaceae, Lamiaceae, Caesalpinaceae and Solanaceae families with 4 species respectively.

Likewise, floristic diversities and medicinal importance of sacred groves in Thrissur district, Kerala was studied by Deepa *et al.* (2016). In the present investigation they surveyed

different sacred groves namely *Adipparambukavu*, *Daivathinkavu*, *Kanisherykavu*, *Kottaichalippattukavu* and *Kottarathkavulead* in Thrissur district of Kerala . The present records resulted in the documnetion of 119 species coming under 104 genera and 51 families, as well the studies on the phytodiversity of a sacred grove and its traditional uses in Karaikal district, Puducherry was conducted by Sambandan and Dhatchanamoorthy

(2012). The present study dealt with floristic composition of angiosperms, which are grown in the area, moreover they also document its traditional medicinal uses. The present observation also elucidates there are about 59 plants species of flowering plants which spreads in 55 genera and 30 families. Many rural people in the district were using these plants to prepare various herbal formulations to cure many diseases.

Table 1: List of medicinal plants and their medico-potentialities

SI No.	Botanical Name	Local Name	Family	Medico-potentiality	Referenc es
1	<i>Abrus precatorius</i> L. (Pl. 4A).	<i>Kunnikkuru</i>	Fabaceae	Anti-viral, anti malarial, anti-fertility, anti-inflammatory and anti-diabetic effect	Garaniya & Bapodra, 2014
2	<i>Acmella calva</i> (DC.) R.K. Jansen (Pl. 4B).	<i>Palluvedaran chedi</i>	Asteraceae	Used to relieve toothache. Used as antiwrinkle creams, it also have anti-inflammatory and anti-fungal properties.	Shanthi & Amudha, 2010
3	<i>Adenanthera pavonina</i> L. (Pl. 4C).	<i>Manjadi</i>	Fabaceae	Anti-fungal, anti-bacterial, anti-cancerous and anti-oxidant properties	Mujahid <i>et al.</i> , 2016
4	<i>Aegle marmelos</i> (L.)Correa (Pl. 4D).	<i>Koovalam</i>	Rutaceae	Anti-microbial, anti-inflammatory, anti-viral, anti-fungal and anti-ulcer properties	Patel <i>et al.</i> , 2012

5	<i>Aerva lanata</i> (L.) Juss. ex Schult.	<i>Cherula</i>	Amarantaceae	Plant extracts has diuretic and anti-inflammatory properties.	Ramana & Vikram, 2015
6	<i>Ageratum conyzoides</i> L.	<i>Kattappa</i>	Asteraceae	Traditionally used for the treatment of ulcer and wound dressing	Ashande <i>et al.</i> , 2015
7	<i>Andrographis paniculata</i> (Burm. f.) Wall.	<i>Kiriyathu</i>	Acanthaceae	Have anti-bacterial, anti-fungal and anti-viral effects. Due to its blood purifying activity, it is recommended to use in cases of leprosy, gonorrhoea, scabies, boils, skin eruptions and chronic and seasonal fevers	Sanwal <i>et al.</i> , 2016
8	<i>Biophytum reinwardii</i> (Zucc.) Klotzsch. (Pl. 4E).	<i>Mukkutti</i>	Oxalidaceae	Anti-diabetic, anti-inflammatory, anti-oxidant and anti-bacterial activities	Pawar & Vyawahare, 2014
9	<i>Boerhavia diffusa</i> L. (Pl. 4F).	<i>Thazhuthama</i>	Nyctaginaceae	Plant extract rejuvenates liver, male reproductive system.	Santhosh <i>et al.</i> , 2011
10	<i>Cardiospermum halicacabum</i> L.	<i>Uzhinja</i>	Sapindaceae	Anti-microbial, anti-fungal, anti-parasitic, anti-diarrhoeal activities. Used for painful, arthritic and inflammatory swellings	Syed <i>et al.</i> , 2013



11	<i>Catharanthus roseus</i> (L.) G. Don	<i>Nithyakalyani</i>	Apocynaceae	They are potential for cancer treatments, in addition to this, the leaf extract is applied against bee sting	Santhosh <i>et al.</i> , 2015
12	<i>Centrosema molle</i> Benth.	<i>Sangupushpam</i>	Fabaceae	Used as an antidote against scorpion bites	Deepa <i>et al.</i> , 2016
13	<i>Chassalia curviflora</i> (Wall. ex Kurz) Thw.	<i>Vella kurinji</i>	Rubiaceae	Used to treat various ailments such as headache, ulcers, sore throat, rheumatism, pneumonia, eye and ear diseases	Ajeesh <i>et al.</i> , 2014
14	<i>Colocasia esculenta</i> (L.) Schott.	<i>Chembu</i>	Araceae	Leaf as well as tuber is cooked and used as part of human diet.	Ajeesh <i>et al.</i> , 2014
15	<i>Cynodon dactylon</i> (L.) Pers.	<i>Karuka</i>	Poaceae	Extraction prepared from the plant is applied for wounds, fresh juice of the plant useful for eye diseases and also used as nasal drop to control nasal bleeding	Ajeesh <i>et al.</i> , 2014
16	<i>Desmodium triflorum</i> (L.) DC.	<i>Nilamparanda</i>	Fabaceae	Used to treat diarrhoea and dysentery	Shanmugam <i>et al.</i> , 2011
17	<i>Eclipta prostrata</i> (L.) L.	<i>Kanjunni or Kayyonni</i>	Asteraceae	Plant extract is used to prepare hairtonic	Dass & Mariappan, 2016

18	<i>Elephantopus scaber</i> L.	Anachuvadi	Asteraceae	Used for the treatment of chest pain and fever. It is also used for the preparation of tonic for cough, bronchitis and asthma	Kabiru & Por, 2013
19	<i>Hibiscus vitifolius</i> L.	Kattuvelluram	Malvaceae	Astringent, urinary disinfectant and also act as a sedative	Mahalakshmi & Senthil Kumar, 2013
20	<i>Ixora coccinea</i> L.	Techi	Rubiaceae	Used for the treatment of stomach problems, dysentery, sores and ulcer. Leaf extract also have an anti-inflammatory potential	Elumalai <i>et al.</i> , 2012
21	<i>Ocimum tenuiflorum</i> L.	Thulasi	Lamiaceae	Leaf extract is used as a remedy for skin diseases, intestinal disorders and eye problems	Bhateja <i>et al.</i> , 2012
22	<i>Phyllanthus amarus</i> Schum. & Thonn.	Keezharnelli	Euphorbiaceae	Plant extract used for as diarrhoea, dysentery, dropsy, jaundice, intermittent fevers, urinogenital disorders and wounds	Verma <i>et al.</i> , 2014
23	<i>Rauwolfia tetraphylla</i> L.	Pambumkaya	Apocynaceae	Root extract is applied as anti-dote against poisonous bites	Jyothi <i>et al.</i> , 2012
24	<i>Rhinacanthus nasutus</i> (L.) Kurz.	Nagamulla	Acanthaceae	Plant extract have free radical scavenging activity	Jyothi <i>et al.</i> , 2012



25	<i>Saraca asoca</i> (Roxb.) Wilde	Asokam	Caesalpi niaceae	Extracts from bark and flowers are used to manage gynaecological complications and infections. Also a remedy for dysentery, bacterial infections and skin problems	Singh <i>et al.</i> , 2015
26	<i>Scoparia dulcis</i> L.	Kallurukki	Scrophul ariaceae	Used for the treatment of kidney stone	Lakshmi & Lethi, 2014
27	<i>Sida acuta</i> Burm. f.	Anakurunth otti	Malavace ae	Used to treat diarrhoea, dysentery, fever, head ache, skin disease. Leaf extract also have wound healing property	Pradhan <i>et al.</i> , 2013
28	<i>Sida alnifolia</i> L.	Kurunthotti	Malvacea e	Anti-inflammatory, anti-oxidant, juice of root is applied to heal wounds	Kumar <i>et al.</i> , 2015
29	<i>Trichosanthes cucumerina</i> L.	Kattupadav alm	Cucurbit aceae	Used for the treatment of inflammatory swellings, also for the treatment of diabetes	Arawwa wala <i>et al.</i> , 2010
30	<i>Vernonia cinerea</i> (L.) Less.	Poovamkur unthala	Asterace ae	The extract of the plant seems to have therapeutic effects against gastro-intestinal and skin diseases	Lakshmi, 2015

31	<i>Wrightia tinctoria</i> (Roxb.) R. Br.	Kambippala	Apocynaceae	Oil prepared out of the fresh leaves of the plant has been assigned to anti-inflammatory and anti-pyretic activities and it is also effective in the treatment of psoriasis. Extracts of the plant is reported to have anti-cancer activities	Anusharaj <i>et al.</i> , 2013
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Conclusion

Through the present study we hope to convey that, the various plants, which are documented from the study area, are also an important factor for the contribution to the biodiversity of the existing area and it also adds to the knowledge of traditional medicine which have a higher scope in future. Eventhough these sacred groves are conserved patches of land in that particular ecosystem. Some of the threatened factors like fast rate of biotic interference, destruction of natural

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habitat by human interference, invasion of some exotic weeds and unsustainable utilization of natural resources may adversely affect the existing diversity of plants of these sacred groves. The safe conservation and sustainable utilization of natural plant diversity is very essential for future generation. Due to lack of awareness about conservation and the balance of nature many of our natural habitats are lost forever. So conservation of wild plant resources will help to maintain the balance of nature to a wide extend

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