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SYZYGIUM CUMINI (LINN) SKEELS AND *SYZYGIUM CARYOPHYLLATUM* (LINN) ALSTON, PLANTS OF MYRTACEAE – ITS ETHNOBOTANICAL USE AMONG FOUR TRIBAL GROUPS OF SOUTH KERALA.

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Abstract: The tribals who live in forest areas depend on forest for various edible products and also to collect non – wood forest products. They have a wide knowledge about the medicinal properties of various plants. The pharmacological world depends on this knowledge of ethnobotany as a lead for developing new medicines. *Syzygium cumini* (Linn) Skeels and *Syzygium caryophyllatum* (Linn) Alston prove to provide cure for various diseases among tribal groups residing in South Kerala. *Syzygium cumini* (Linn) Skeels is also used in veterinary medicine and also used for other needs.

Index terms: Ethnobotany, *Syzygium cumini*, *Syzygium caryophyllatum*, Kani, Kanikkar, Malaiarayan, Malapandaram, Malavedan

I. INTRODUCTION

India is the treasure house of ethno botanical knowledge as it is a land with diverse geographical areas, languages, culture and heritage. The science that explores the relationship of man with plants is Ethnobotany. It was John Hershberger, an American Botanist who coined the term ‘Ethnobotany’ in 1896. According to the reports of WHO, 65- 80% of the world’s population depend on plants for their primary health care⁸ and Kerala stands no exception. Kerala situated in South India is nourished by the Western Ghats. Plants occupy an unique position in the social, cultural and medicinal areas of the rural and tribal people of Kerala. There are 48 tribal communities in Kerala out of which 36 are scheduled tribes and others are denotified tribal communities. Among the 14 districts Thiruvananthapuram, Kollam and Pathanamthitta are the districts to the South of Kerala. The study aims to document the use of *Syzygium cumini* (Linn) Skeels and *Syzygium caryophyllatum* (Linn) Alston among four tribal groups viz., Kani, Malavedan, Malapandaram and Malaarayan inhabiting the regions of South Kerala. Both these plants belong to the Family Myrtaceae and yield edible fruits.

The tribals of Kerala are broadly classified based on their inhabitation into seven major zones¹⁸ and the study area falls under the Nedumangadu zone which includes part of Idukki, Pathanamthitta, Kottayam, Kollam and Thiruvananthapuram districts.

The documentation of ethnobotanical works in Kerala started with the publication of ‘The Hortus Malabaricus’, the monumental treatise of Rheed¹³. Later it was Manilal⁹ who with his serious studies in ethnobotany contributed a lot in this field. Since then many have been working in this field. Ethnobotany studies of Pathanamthitta district², Plants used in the treatment of diabetes in Kollam and Thiruvananthapuram⁷, Study on traditional mother care plants by rural communities of South Kerala¹⁵, Tribal medicine for gynecological problems in Idukki dist, Kerala state¹ are some of the works worth mentioning.

II. MATERIALS AND METHODS

In the present study the use of *Syzygium cumini* (Linn) Skeels and *Syzygium caryophyllatum* (Linn) Alston among four tribal groups viz., Kani, Malavedan, Malapandaram and Malaarayan inhabiting the regions of South Kerala were studied. Both the plants taken for the study belong to the Family Myrtaceae and yield edible fruits. Both these plants have traditional medicinal importance. *Syzygium cumini* (Linn) Skeels has been widely used to treat diabetes for centuries¹⁴. It is also used to treat chronic diarrhoea and other enteric disorders¹³. *Syzygium caryophyllatum* (Linn) Alston is also reported to possess various medicinal properties like anti diabetic, antifungal etc¹⁶.

2.1 Taxonomic description of the plants selected for study

2.1.1 *Syzygium cumini* (Linn) Skeels

Evergreen trees, to 30 m high, bole often crooked, bark 8-10 mm thick, light grey, mottled with dark grey, rough, with shallow exfoliated depressions; blaze red; branchlets glabrous. Leaves simple, opposite, exstipulate; petiole 10-25 mm long, stout, grooved above, glabrous; lamina 7.5-18 x 2.5-8 cm, elliptic, ovate-lanceolate, elliptic-lanceolate, elliptic-oblong, elliptic-obovate, ovate-obovate or oblong-ovate, base acute, apex acuminate or obtusely acuminate, margin entire, glabrous, coriaceous, minutely punctate; lateral nerves many, parallel, close, slender, raised beneath, looped near the margin forming intramarginal nerve; intercostaereticulate, prominent. Flowers bisexual, 1 cm across, greenish-white, sessile, in compound trichotomous cymes from leafless nodes, sometimes terminal and axillary. Calyx tube 2 x 3 mm, turbinate; lobes 4, obscure. Petals 4, calyprate; Stamens many; filaments red, subulate, 2-5 mm long; Ovary inferior, 2 mm, 2-celled; ovules many; style subulate, filiform. Fruit a berry 10-15 mm long, black with pink mesocarp, oblong or globose, crowned by persistent calyx.

2.1.2 *Syzygium caryophyllatum* (Linn) Alston

Trees, to 6 m high; bark thick, reddish-brown; branchlets terete. Leaves simple, opposite, exstipulate; petiole upto 4 mm long, stout, glabrous; lamina 3-8 x 1.3-3.5 cm, obovate or obovate-oblong, base attenuate or acute, apex obtuse, obtusely acute or emarginate, margin entire, glabrous, coriaceous, brown on drying, pellucid-dotted; lateral nerves many, close, slender, prominent looped at the margin forming intramarginal nerve; intercostaereticulate. Flowers bisexual, white, 5 mm across, in terminal corymbose cymes, inflorescence branches moderately thick, ascending. Calyx tube 2-2.5 mm long, turbinate, no thick disc. Petals calyprate. Stamens numerous, bent inwards at the middle when in bud, 2.5-3.5 mm long; ovary inferior, 2-celled, ovules many; style 1; stigma simple. Fruit a berry, 5 mm across globose, black.

2.2 Techniques of enquiry

Survey method was used. Ethnobotanical information was collected by talking with people. The plant interview method by⁶ adopted from^{2, 5, 11} has been practiced for identification of plants by informants and getting correct information regarding the specimens. For this, field studies are conducted at tribal settlements. The plant interview is adopted by:

- Collection of plants from the field and presented them to informants
- Pressed plant specimens are shown
- Photographs of plant specimens in the computer (Laptop) are shown
- The vernacular names used for the plants in Kerala (gathered from previous study) are informed.

All the above mentioned methods are found very useful for the tribes to identify the plant. The primary data are recorded according to a semi – structured questionnaire, as it allow flexibility in discussion.

2.2.1 Questionnaire used for ethnobotanical investigation

- Name/s of the plant?
- Name the diseases, which the plant can cure?
- Which is the part used?
- How do you use this plant?
- Are you giving any instruction for the usage of this medicinal plant?
- If so, what are the instructions?
- What are the other purposes of this plant?
- Do you believe that this plant is the best suited for the purpose?
- Can we see this plant in your locality?
- Will you help us collect some sample of these plants?

At least six informants from each tribal group have been interviewed. In order to confirm the use of the plant and the mode of preparation, information is analyzed using the following methods.

- In the next year or after six months, another interview is conducted with the same person if possible and the data are compared.
- Three or more persons belonging to the same group from the same location are interviewed and the data are compared whether the information obtained tally with each other.

2.3 Presentation of ethnobotanical data

An introduction of each tribal group, containing the community name, origin of the name (if available), area of settlements, major foods used, religious believes, the status of women in their family etc. are given under each tribe. Then, the ethnobotany of that particular tribal group with scientific name of the plant, use of the plant, part/s used and the mode preparation and application are provided.

2.4 Tribals selected for the study

2.4.1 KANIKKAR/ KANI

The name 'Kanikkar' means 'proprietor of land'. Kani is the shortened form of Kanikkar¹⁰. They were former settlers of Kalakkad and Kallidakkurichi of Thirunelveli district, Tamil Nadu. They speak special language called Kanikkar Bhasha or malampashi, which is actually a mixture of Tamil and Malayalam.

They inhabit Thiruvananthapuram and Kollam Districts. The Kani people collect non – timber forest products from the forest and sell them in markets. Some people are engaged in hunting and fishing.

The Kanis are a nomadic community living in small clusters. The Forest Department and Tribal welfare Department have built huts for them. They also are given small plots of land where they can do cultivation. Education is also given to them by the Government so compared to other tribal group the literacy group is high.

This tribal group has secret and sacred knowledge of different plants. The tribal head, Moopan also practice herbal medicine. It is with the knowledge of Kanis' that the use of *Trichopus zeylanicus* Gaertn. ssp. *Travancoricus* (Bedd.) Burkil ex Narayanan. (*Arogyapaacha*) was patented as "Jeevani". Muttukanis know the treatment of chronic diseases.

2.4.2 MALAIARAYAN

The word Malaiarayan literally means 'Monarch of the hills'. They speak Malayalam. They inhabit places like Kottayam, Idukki, Pathanamthitta and Kollam districts.

Earlier they were nomadic agriculturists. Later they became settled cultivars. The community possesses a prominent position among the tribes of Kerala. They have high educational status and high literacy rate.

Though formerly they used medicines prepared by them. But now they entirely depend on modern medicine.

2.4.3 MALAPANDARAM

Malapandaram are so called to denote people of the hill (Malai) with a pale complexion (Panduranga). 'Bhandaram' in Malayalam connotes distinguishing and hated person. They are basically a primitive hunting tribe. The Malapandarams use Malayalam to communicate with others, but among themselves they speak a language mixed with Tamil and Malayalam.

They inhabit the forest regions of Kollam, Pathanamthitta and Kottayam districts. Usually the deeper forest tracts of Achankovil, Manimala and Sabarimala; high range areas of Kollam and Pathanamthitta and also along the Pamba and Achankovil rivers of Pathanapuram. Hunting and Gathering are their traditional occupation. They also sell medicinal herbs and roots collected from the forests to pilgrims heading for Sabarimala.

The medical practice seen among them is called 'Pachavaidyams'. The practitioner is called nattuvaidyar or sidhavaidhyar. They collect medicinal herbs from forest regions of Sabarimala.

2.4.4 MALAVEDAN

Malavedan means those vedans (hunters) that live on the hills. They are also known as Malavetan or Malaivedan. Among them they speak Tamil but to converse with others they use Malayalam.

The Malavedan community is found in Kottayam, Idukki, Pathanamthitta, Kollam and Thiruvananthapuram districts.

The Malavedans are basically hunters. They are landless community therefore they are not involved in agriculture. Land and forest resources are their main economic resources. Now a day's government is taking special interest by allotting land for them. The people among them have low education status.

They have vast knowledge of the medicinal uses of plants. Elders among them depend upon this knowledge for their medicare. They also depend on modern medicine.

III RESULTS AND DISCUSSION

3.1 Result of uses of *Syzygium cumini* and *Syzygium caryophyllatum* fruits by the four tribal communities of South Kerala.

Table 3.1

Name of tribe: KANI		
Plant name	As Medicine	As Food
<i>Syzygium cumini</i> (Linn) Skeels	To cure: Fatigue Part used: Fruit. Mode of preparation and application: Fruit juice is taken in case of fatigue.	Part used: Fruit. Mode of preparation: Fruits are consumed.
<i>Syzygium caryophyllatum</i> (Linn) Alston	To cure: Acidity in stomach. Part used: Fruit. Mode of preparation and application: Fruits are used as carminative.	Part used: Fruit. Mode of preparation: Fruits are used.
Name of tribe: MALAIARAYAN		
Plant name	As Medicine	As Food
<i>Syzygium cumini</i> (Linn) Skeels	To cure: Jaundice Part used: Stembark Mode of preparation and application: The stem bark is collected, washed, crushed and one cup of juice is taken, it is boiled in 4 cups of water and reduced to one cup. It is taken orally early in the morning. To cure: Poor lactation in cattle. Part used: Stembark	Part used: Fruits Mode of preparation: Ripe fruits are eaten. Mode of preparation: Medium ripe fruits are pickled.

	Mode of preparation and application: Stem bark is boiled with rice and given to cattle once daily.	
<i>Syzygium caryophyllatum</i> (Linn) Alston	To cure: Eye infection Part used: Root bark Mode of preparation and application: Root bark is washed and crushed, finely ground and dried placing on an iron plate. This is made into a paste and applied over the eye.	Part used: Fruits Mode of preparation and application: Ripe fruits are eaten.
Name of tribe: MALAPANDARAM		
Plant name	As Medicine	As Food
<i>Syzygium cumini</i> (Linn) Skeels	To cure: Stomach ache Part used: Fruit Mode of preparation and application: A glass of fruit juice is taken three times a day. To cure: Dysentery Part used: Leaves Mode of preparation and application: Leaves are crushed so as to get one cup of juice which is drunk two times a day.	Part used: Fruits Mode of preparation: Ripe fruits are eaten.
<i>Syzygium caryophyllatum</i> (Linn) Alston	To cure: Skin allergy Part used: Leaves Mode of preparation and application: Leaf paste is prepared by grinding it finely and is applied over the skin.	Part used: Fruits Mode of preparation: Ripe fruits are eaten.
Name of tribe: MALAVEDAN		
Plant name	As Medicine	As Food
<i>Syzygium cumini</i> (Linn) Skeels	To cure: Tooth ache Part used: Leaf petiole Mode of preparation and application: Leaf petiole is held at portion of tooth ache.	Part used: Fruits Mode of preparation and application: Ripe fruits are eaten.
<i>Syzygium caryophyllatum</i> (Linn) Alston	Not used	Part used: Fruits Mode of preparation and application: Ripe fruits are eaten.

From the study it is seen that the fruits of both plants are consumed by people of all four tribal communities studied. About 9 medicinal uses were reported. Out of which 6 diseases were treated using the plant parts of *Syzygium cumini* (Linn) Skeels and 3 were treated using *Syzygium caryophyllatum* (Linn) Alston.

Table 3.2.1 Plants used by the tribal community for Medicinal uses

Name of tribe	<i>Syzygium cumini</i> (Linn) Skeels	Part used	<i>Syzygium caryophyllatum</i> (Linn) Alston	Part used
Kani	Fatigue	Fruit	Acidity in stomach	Fruit
Malaaryan	Jaundice	Stem bark	Eye infection	Root bark
Malapandarm	Stomach ache Dysentery	Fruit Leaves	Skin allergy	Leaves
Malavedan	Toothache	Leaf petiole		

Table3.2. 2: Plant used by tribal community for Veterinary uses

Name of tribe	<i>Syzygium cumini</i> (Linn) Skeels
Malaaryan	Poor lactation in cattle (Stem bark)

Table 3.2.3: Plant used by tribal community for Miscellaneous use

Name of tribe	<i>Syzygium cumini</i> (Linn) Skeels
Malaaryan	For making furnitures (Tree trunk)

Syzygium cumini (Linn) Skeels is used to increase lactation in cattle and its trunk is used to make furniture by the Malaaryan tribe. Due to the unawareness of the medicinal properties of *Syzygium caryophyllatum* (Linn) Alston by other rural people it is ignored and its habitat is being destroyed for various reasons like construction of high rise buildings, road and bridge construction, urbanization, industrialization etc.

IV CONCLUSION

The study clearly shows that both *Syzygium cumini* (Linn) Skeels and *Syzygium caryophyllatum* (Linn) Alston are used by tribals of South Kerala. Compared to *Syzygium cumini* (Linn) Skeels, the use of *Syzygium caryophyllatum* (Linn) Alston was less due to some reasons like

i) Smaller size of fruit.

ii) The habitat is usually away from place of residence.

iii) Reserved as food for birds and animals.

However the study points out the need for conserving such plants especially *Syzygium caryophyllatum* (Linn) Alston that is facing a threatening situation of existence.

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