

Mushrooms in the food culture of the *Kaani* tribe of Kanyakumari district

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India is inhabited by over 50 million tribals belonging to 550 communities and in Tamil Nadu 36 tribal communities live, while six tribal communities are found in the Southernmost Kanyakumari district. Of the six tribes, *Kaani* tribe lives in the forests and hills of the Western Ghats. The *Kaani* tribe lives in consonance with Nature and their life is linked to the forest ecosystem. Though they live in settled areas, they still retain the traditional hunter-gatherer instinct, and collect their food from the forests that include mushrooms. Mushrooms contain a host of defense potentiators, which stimulate the immune system of humans. These mushrooms provide rich resources for the gene banks.

Keywords: *Kaani* tribe, Western Ghats, Ecosystem, Kanyakumari, Food culture

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The presence of multiethnic groups of ancient lineage and the existence of very divergent vegetation make India one of the richest countries in ethnobotanical knowledge. The country is inhabited by over 50 million tribal people belonging to about 550 tribal communities¹. In Tamil Nadu, ethnobotanical studies were carried out from the late 1970s by various ethnobotanists²⁻⁶.

In the State of Tamil Nadu 36 tribal communities live, and six of them are found in the Southern most Kanyakumari district. According to the census of 1981, the tribal folks are about 0.45 % numbering 7,854⁷. Of the six tribes, documentary materials are available on the *Kaani* tribe, who forms the numerical majority. *Kaani* is a word denoting 24 '*Manais*', while one '*Manai*' is a piece of land covering an area of 823 square meters. A person who kept this land under control also came to be called *Kaani*. In course of time the right over the land became hereditary and the person who has this hereditary right is called *Kaani*⁸.

Study area

Kanyakumari district lies in the southern tip of India and is geographically the region where the Western Ghats ends. It has Kerala in the North

West, Thirunelveli district in the North East, Arabian Sea in the South West, and Bay of Bengal in the South. Kanyakumari forest division is located between 70 10'-77 35' East longitudes and 8 5' – 8 35' North latitudes. The forests in this district are rich in biodiversity. The Kanyakumari forests form an integral and important part of Agasthiar hills which is one of the micro-endemic centres⁹.

The staple food of the *Kaani* tribe is rice. The tribal people were in the habit of using a traditional wild strain of paddy called '*Karainel*'. It is not cultivated presently, owing to crop raids by animals and perennial conflict between the tribal population and wild animals. The traditional 'hunter gatherer instinct' still exists in the tribal people and they collect nuts, fruits, tubers, greens and mushrooms in forests¹⁰.

Methodology

The present study is based on field trips and personal interviews with tribal people of various tribal settlements in the forests and hills of the Western Ghats of Kanyakumari district. The queries were made relating to the occurrence, identification, collection and usage of mushrooms. The collected mushrooms were identified by the staff working in CAS Botany, University of Madras, Chennai, Tamil Nadu.

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The tribal societies of Western Ghats are closely linked to the forest ecosystem where they traditionally live in harmony with nature. Apart from their profession which is forest based agriculture, which itself is based on heavy dependence of forest resources, the tribal people obtain a variety of resources directly from the wild.

A large number of plants and animals that are used by this tribe are not widely known as food resources, which have medicinal value. Of the less known food resources, mushroom occupies a vital role.

The present study is on the edible mushrooms that form the food culture of the *Kaani* tribe of Kanyakumari district. The study is an attempt to highlight the uses of less known food resources of this tribe, which have immense food value.

The study was done at the following places and the respective community leaders were interviewed and with their permission and support, the pertinent details were recorded (Table 1).

Macroscopic study

Macroscopic characters of fruit body were noted after the collection of fresh specimens. Photographs of the fresh specimens were taken both in the collection place as well as in the laboratory. Spore prints were taken to know the colours of the spores. Kornerup and Wanscher's book was followed to determine colours of the fresh specimens. The terms for the description are that of Largent and in some cases Vellinga¹¹⁻¹³. The specimens were tagged with the collection number and dried in electric drier and were preserved in sealed polythene bags along with naphthalene balls to protect from insect and pest attack.

The preserved specimens were revived in 5% potassium hydroxide (KOH) or 10% Sodium Hydroxide (NaOH) solution and stains such as crystal blue, cotton blue and 1 % aqueous phloxine were used. Amylodity reaction of spores and tissues were studied by using Melzer's reagent (Chloral hydrate-100gm; Potassium iodide 5gm; distilled water 100ml). Discoloration of basidiopores and presence or absence of germ pore in basidiopores was confirmed by using concentrated Sulphuric acid (H₂SO₄). The basidiopore shape was determined according to the Q coefficient (length- width ratio)¹² of at least 20 randomly

selected but mature basidiopores. The measurements do not include the apiculus and were made in KOH at 2000X with a calibrated optical micrometer in a trinocular labomed (CXL plus) microscope. The line diagrams were drawn with the aid of POM prism type camera lucida. The length in the basidia measurements does not include sterigmata. The preserved specimens were deposited in the Herbarium of Madras University Botany Laboratory (MUBL) for future microscopic observations. Identification of specimens was done using standard identification keys.

The tribal people collect the edible mushrooms in the wild after the monsoons. The list of mushrooms collected by the *Kaani* tribe is given in the Table 2, Figs 1-9.

Mushroom recipe of the *Kaani* tribe

The tribal people collect the mushrooms early in the morning in bamboo or reed baskets. The collected mushrooms are cleaned in fresh water twice or thrice and slightly pounded in wooden mortar with an equal amount of rice. Then both are boiled with little water. Spices, salt and wild green chillies are added for flavor and aroma. Then it is served with cooked rice or cooked tapioca. Grated coconut is added to this preparation by some tribal people.

Table 1—Name of Informants, their age and places

Collection places	Informants	Age (In yrs)
Vellambi hills	M. Sankaran <i>Kaani</i>	58
	S. Kumar <i>Kaani</i>	35
	C. Ayappan <i>kaani</i>	59
Keeriparai forest	M. Raman <i>kaani</i>	62
	Mundathi <i>kaani</i>	76
Thatchamalai hills	Mathukutty <i>kaani</i>	65
Kodayar hills	Saraswathi <i>kaani</i>	51
	Murugan <i>kaani</i>	33

Table 2—List of mushrooms collected by *Kaani* tribe

Botanical name	Vernacular name
<i>Pleurotus sajor caju</i> (Fr.) Singer	<i>Vellathazan Kumizh</i>
<i>Termitomyces heimii</i> Natarajan	<i>Putru Kumizh</i>
<i>Termitomyces microcarpus</i> (Berk & Broom) R Heim	<i>Ari Kumizh</i>
<i>Volvariella volvaceae</i> (Bulliard ex Fries) Singer	<i>Uppu Kumizh</i>
<i>Auricularia auriculata</i> (Bull.) J. Schrot	<i>Murukkan Kumizh</i>
<i>Lentinus fusipes</i> Cooke & Masseur	<i>Mozhaan Kumizh</i>
<i>Lentinus tuberegium</i> (FR).	<i>Kollamng Kumizh</i>



Fig. (1-9)—*Termitomyces hemi* (Keeriparai forest); 2—*Lentinus tuberegium* (Kodayar hills); 3—*Auricularia auriculata* (Vellambi hills); 4—*Pleurotus sajor caju* (Fr.) Singer (Thatchamalai); 5—*Volvariella volvaceae* (Vellambi hills); 6—*Lentinus fusipes* (Kodayar); 7—*Termitomyces microcarpus* (Vellambi hills); 8—A *kaani* tribal person collecting mushroom; 9—A *kaani* woman cooking mushroom

Discussion

Among the different bio-resources, microorganisms constitute a huge and almost unexplored reservoir of resources which could provide innovative applications to man. Without microorganisms all life on Earth would cease. Despite the immense value of microbes, knowledge on their diversity, sustainable utilisation and rate of extinction on microbes due to overexploitation is very scarce. The vast microbial diversity in the wild, combined with indigenous methods of collection, utilization and conservation could provide new and valuable products.

The diversity of fleshy fungi is rich in the Western Ghats. They are the potential source of wood degraders and also a food resource as

supplement to vegetables. The fleshy fungi are rich in polysaccharides, proteins, triterpenes, ascorbic acid, sterols, lipids, alkaloids, coumarines, glycoside, volatile oil, riboflavin, etc. These compounds are referred to as “host defense potentiators”, which stimulate the immune system of humans¹⁴.

Mushrooms provide a rich addition to the diet of the *Kaani* tribe in the form of proteins, vitamins, potassium, sodium, phosphorous and iron with low fat content. As the normal diet of the *Kaani* people is starch dominated, the mushrooms provide a balanced diet, even though it is a seasonal food.

The *Kaani* tribe possesses wide knowledge about the utilisation of plant resources and lot of traditional knowledge¹⁵. Natural threats such as global warming and attendant climate change with

its adverse effects on tropical ecosystems have their direct consequences on the very survival of mushrooms as they are highly sensitive to environmental conditions. Forest conservation attempts should encompass the conservation of the lower form of this flora also.

With the exploding global population of *homo sapiens*, humanity urgently needs additional resources to increase food production, and it has been proposed to concentrate, exploit and utilise minor food items, especially mushrooms. No doubt the forests of the Western Ghats are *in situ* gene banks and the wild mushrooms provide veritable genetic resources required to augment or sustain domestic mushroom species. It is high time that geneticists utilise these wild resources, considering the threat of global warming and species extinction.

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References

- 1 Binu S, TS Nayar & P Pushpangadan, An outline of Ethnobotanical Research in India, *J Econ Tax Bot addl Ser*, 10 (1992) 405-428.
- 2 Ragunathan K, Tribal Pockets of Nilgiris, Recordings of the Field study on Medicinal Flora and Health Practices, (Central Council for Research in Indian Medicine and Homeopathy, New Delhi), 1976.
- 3 Lakshmanan KK & AS Sankaranarayanan, Some Folklore Medicines in the Remote Hamlets of Dhoomanoor and Champukarai of Anaikatty Hills, Coimbatore, Tamil Nadu, *Indian J Forestr*, 11(3) (1998) 217-219.
- 4 Viswanathan MB, EH Premkumar & N Ramesh, Ethomedicines of Kanis in Kalakkad Mundanthurai Tiger Reserve, Tamil Nadu, *Ethnobotany*, 13 (2001) 60-66.
- 5 Muthkumaraswamy S, VR Mohan, S Kumaresan & V Chelladurai, Traditional Medicinal Practices and Postnatal care of Mother and Child, *Nat Prod Rad*, 3(6) (2004) 422-426.
- 6 Anonymous, Census of India, 1981, Kanyakumari District Gazetteer, (Commissioner of Archives and historical Research, Chennai), 1995.
- 7 Davidson SS, A Selvin Samuel, G Johnsy & V Kaviarasan, Wild Edible Mushrooms consumed by the Kaani tribe of Kanyakumari – Western Ghats, National Symposium on New Vistas for Mycology in meeting Global Challenges, CAS in Botany, University of Madras, Chennai, 2008.
- 8 Khoshoo TN, Biodiversity Conservation and Sustainable Utilization : A blueprint for Action, In : Conservation and endemic Evaluation of Biodiversity, edited by Pushpangadan K Ravi and V Santhosh, (Oxford & IBH Publishing Co., New Delhi) 1997.
- 9 Davidson SS, Tribal Heritage of Kanyakumari District, National seminar on the Heritage of Kanyakumari District, INTACH, Nagercoil Chapter, 2006.
- 10 Largent DL, How to identify mushrooms to Genus 1: *Macroscopical Features*, 1986, 1-85.
- 11 Vellinga EC, Ecology and Distribution of Lepiotaceous fungi-a Review, *Nova Hedwigia*, 78 (2004) 273-299.
- 12 Bas C, Morphology and subdivision of Amanita and a Monograph of its section Lepidella, *Persoonia*, 5 (1969) 285-579.
- 13 Kornerup A & Wanscher JH, *Methuen Handbook of Colours*, 3rd edn, (Methuen and Co.,Ltd, London) 1978, 243.
- 14 Marimuthu TS, Nakkeeran & V Sendhilvel, Fungi, In: Tamil Nadu *Biodiversity Strategy and Action Plan Wild Plant Diversity*, edited by R Annamalai, (Tamil Nadu Forest Department, Chennai), 2004, 25-41.
- 15 Khoshoo TN, Conservation of Biodiversity in Biosphere: In: Indian Geosphere Biosphere Programme Some aspects, *Nati Acad Sci*, Allahabad, 1991, 178-233.