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Diversity of wild edible mushrooms in Korea district of Chhattisgarh

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Abstract

Chhattisgarh state has the huge diversity of mushroom flora among which some are edible. Survey was conducted in Korea district during rainy season for naturally grown wild edible mushrooms. Forty three village of five Tehsil covered under survey and 55 tribal/ rural peoples were contacted from different villages for information about wild edible mushroom flora at their surrounding locality. Wild edible mushrooms were encountered during survey are: *Astraeus hygrometricus*, *Astraeus odoratus*, *Termitomyces umkowaani*, *Termitomyces heimii*, *Termitomyces longiradicatus*, *Termitomyces* sp., *Cantharellus* sp., and *Russula rosea*. Urban/Local market also visited where collected wild edible mushrooms were sell out by tribal/rural peoples of village.

Keywords: Edible, survey, *Termitomyces*, *Cantharellus* and *Russula*

Introduction

Wild edible mushrooms are collected by tribal peoples for their food as well as livelihood. Mushrooms are used as food supplement in various cultures and known for their edibility and delicacy for which they are collected from wild and also cultivated (Tripathy *et al.*, 2014) [1]. Nutritionally, edible mushrooms provide essential nutrients and contribute significantly to human diet. Mushrooms are not only sources of nutrients but also have been reported as therapeutic foods, useful in preventing diseases such as hypertension, hypercholesterolemia and cancer. All the essential amino acids minerals are present in mushrooms (Buigut, 2002) [2]. Seventy five mushroom flora were collected from Chhattisgarh plain and Bastar plateau of Chhattisgarh State during survey of mushroom fungi conducted during monsoon season in the year 2005 and 2006 (Thakur *et al.*, 2017) [3]. Similarly Eight species of gilled mushroom, *Russula*, namely *R. congoana*, *R. crustosa*, *R. lepida*, *R. lutea*, *R. olivacea*, *R. parvovirescens*, *R. senecis* and *R. virescens* were reported to be edible (Verma *et al.*, 2018) [4]. Edible mushrooms, *A. hygrometricus*, *R. lepida*, *T. eurrhizus*, *T. heimii*, *T. microcarpus* were reported to be collected from sal (*Shorea robusta*) forests by local people and Tibetan residents in Dehradun, Uttarakhand (Semwal *et al.*, 2014) [5]. Twelve species of *Russula* including some edible species (*R. congoana*) were reported from Kerala (Mohanan, 2014) [6]. Genus *Termitomyces* was established in 1942 (Heim, 1942) and its various species are reported to be edible for most people. Edible species of *Termitomyces* include: *T. albuminosus*, *T. clypeatus*, *T. globules*, *T. heimii*, *T. microcarpus*, *T. sagittiformis*, *T. striatus*, etc. *Termitomyces eurrhizus* is a wild edible mushroom used by ethnic tribes of Nagaland (Bhaben *et al.*, 2011) [7] and it was also reported from a market of Midnapore, West Bengal (Purkayastha and Chandra, 1975) [8]. Eighteen edible *Termitomyces* species were reported from Western Ghats (Karun and Sridhar, 2017) [9]. Role of wild edible mushrooms collected from *Shorea robusta* forest ecosystem by the Santal in lateritic region of West Bengal was studied and inventoried (Pradhan *et al.*, 2010; 2013) [10-11]. Likewise in Korea district, varieties of wild edible mushrooms are prevailing and collected by local people for consumption and sold out in local market at higher rate. In current study effort was made to collect information about wild edible mushroom flora found in forest area and grassland of different village of Korea district of Chhattisgarh State.

Materials and Methods

Korea district comes under the North hilly region of Chhattisgarh in Central India. The administrative headquarters of the district is Baikunthpur. Survey was conducted during rainy season of 2019 and visited at local market and rural/tribal peoples of five Tehsil (Baikunthpur, Khadgawan, Manendragarh, Bharatpur and Sonhat). Fourteen villages included from Baikunthpur for data collection and nine village of Khadgawan, seven from Manendragarh, six villages from Bharatpur and seven from Sonhat Tehsil.

Mushrooms was found associated according to genera with *Shorea robusta*, *Madhuca indica*, *Bambusa indica*, abandoned land, sal forest and termite mound and nearby area. During survey various mushrooms encountered viz.: edible, medicinal as well as poisonous/non edible but attention had given only in wild edible mushroom flora and identification was done with the help of earlier published monograph and literatures.

Results and Discussion

Wild edible mushroom are used for consumption and it provides monetary benefits by sold out. Forty three villages were surveyed from five Tehsil of Korea district and forest area was visited for collection of wild edible mushrooms (Table 1&2). Local market and roadside sell proved that which mushrooms were collected for livelihood by tribal and rural (Table 3). The mushrooms which found in district were: *Astraeus hygrometricus*, *Astraeus odoratus*, *Termitomyces umkowaani*, *Termitomyces heimii*, *Termitomyces longiradicatu*, *Termitomyces* sp., *Cantharellus* sp., and *Russula rosea*. These mushrooms were collected from forest area and surrounding of village and it's known by local name at village of all Tehsil in Korea.

Astraeus spp. collected by scratching the surface of soil and looking for white matrix. Wherever white matrix seen on the surface or subsurface, it is a perfect indication that troops of

immature fruit bodies prevail in its surroundings. *Termitomyces* spp. Is mostly found in termite infested soil. The emergence of the fungus has also been noticed from termite comb. Found mainly in shady moist places. Both epigeous and hypogeous in nature, scattered occurrence. *Cantharellus* sp. found associated with bamboo root because it's a mycorrhizal fungus and *Russula rosea* grows on decomposed substrates of tree leaves and grasses in sal forest land. Edible mycorrhizal and mutualistic symbionts fungi (*Astraeus* and *Termitomyces*) found in large quantity than *Cantharellus* and *Russula* sp. and these two mushrooms is not much popular among people that is why market rate also lowest. Seventy five mushrooms flora were reported by Thakur *et al.* (2017) [3] from Chhattisgarh Plains and Bastar Plateau of Chhattisgarh State during survey of mushroom fungi conducted during monsoon season in the year 2005 and 2006. Verma *et al.* (2019) [12] collected wild edible mushroom (*Astraeus hygrometricus*, *Russula congoana*, *Termitomyces clypeatus*, *T. eurhizus*, *T. microcarpus* and *Termitomyces* sp.) from sal forest of Dindori district, Madhya Pradesh. The forays conducted in the diverse habitats of the Konkan region of Maharashtra for four consecutive monsoon seasons during 2008-2012, revealed the occurrence of 29 mushrooms (Borkar *et al.*, 2015) [13].

Table 1: Lists of surveyed villages where rural/tribal peoples indulge in collection of wild edible mushrooms

S. N.	Tehsil	Number of village	Name of Villages
1.	Baikunthpur	14	Nagar, Rataga, Ujyarpur, Kemandand, Kanchanpur, Bhandardara, Dudhaniya, Salka, Sara, Umjhar, Kottakkal, Lotnapara, Kadambari and Sorga
2.	Khadgawan	9	Chirmi, Duggi, Banjaridand, Shivpur Bardar, Dewadand, Mendra, Bharda, Kochalka and Dhanpur
3.	Manendragarh	7	Shivgarh, Bishrampur, Lai, Bhalour, Siroli, Tarabakra and Lohari
4.	Bharatpur	6	Punji, Singrauli, Amradandi, Devgarh, Durghasi and Bagridand
5.	Sonhat	7	Chhatrang, Ghughra, Kusah, Dudhaniya, Barwar, Kachardand and Pusla

Table 2: Lists of rural/tribal peoples who are involved in wild edible mushroom collection and selling in local market and roadside

S. N.	Tehsil	Number of people	Name of tribal/rural peoples from different village
1.	Baikunthpur	13	Mohan Singh, Mehi Lal, Gayadin, Samay Lal Singh, Gayatri Singh, Mahendra Kumar Basant, Kumar Sant Ram, Bans Lal, Rajendra Prasad, Ram Prakash, Ram Kumar Gond, Kaleshwar
2.	Khadgawan	9	Champa Kali, Bund Kunwar, Dharmendra, Santoshi Bai, Mani Lal, Ramesh Singh, Bharat Singh, Uma Bai, Uday Ram
3.	Manendragarh	11	Son Sai, Shiv Singh, Manhagu Ram, Than Singh, Jamaalu, Mohar Singh, Laxmi Bai, Prithvi Singh, Rampati, Brijlal, Ram Singh
4.	Bharatpur	10	Basant Gond, Shyam Narayan Kanwar, Fudda Ahirwar, Prakash Narayan, Jaanki Bai, Shyam Bai, Fool Kunwar, Ram Karan Singh, Kunjal Singh, Hiralal
5.	Sonhat	12	Gulab Singh, Santu Ram, John Lal, Shiv Kumar, Shringar Sai, Iswar Prasad, Rupa Singh, Anup Sai, Hira Lal, Nand Lal, Urmila Singh, Taravati Singh

Table 3: Wild edible Mushroom flora collected in Korea District

S. No.	Vernacular name	Scientific Name	Period of Collection	Habitat	Involved Family Member	Estimated Yield (Kg)/season	Market Price (Rs. per Kg)
1.	Sarai Putu, Gohiya	<i>Astraeus hygrometricus</i>	July- August	Nearby Sal Tree	02-03	75-80	500-600
2.	Chharkeni Putu	<i>Astraeus odoratus</i>	3d week of July-4 th week of August	Nearby Sal Tree	02-03	80-90	400-500
3.	Pateri Khukhadi	<i>Termitomyces longiradicatus</i>	3d week of July-1 st week of September	Grassess, sandy soil & Plough soil	02-03	70-75	600-800
4.	Chirko Khukhadi	<i>Termitomyces umkowaani</i>	2 nd week of July-1 st week of September	On forest soil (Sandy, red & Black)	01-02	60-70	500-600
5.	Bhadwahi/Bhundu Khukhadi	<i>Termitomyces heimii</i>	July-August	Termite mounds	02-03	50-60	600-800
6.	Kumha Khukhadi	<i>Termitomyces</i> sp.	2 nd Week of August-September	Sandy, Loamy soil & barren land	02-03	65-70	600-800
7.	Bans Khukhadi	<i>Cantharellus</i> sp.	July-August	Near root zone of Bamboo Plant	01-02	15-20	400-500
8.	Murga Chundur	<i>Russula rosea</i>	2 nd week July-1 st week of September	Forest land & Beneath the forest tree	01-02	10-15	200-250

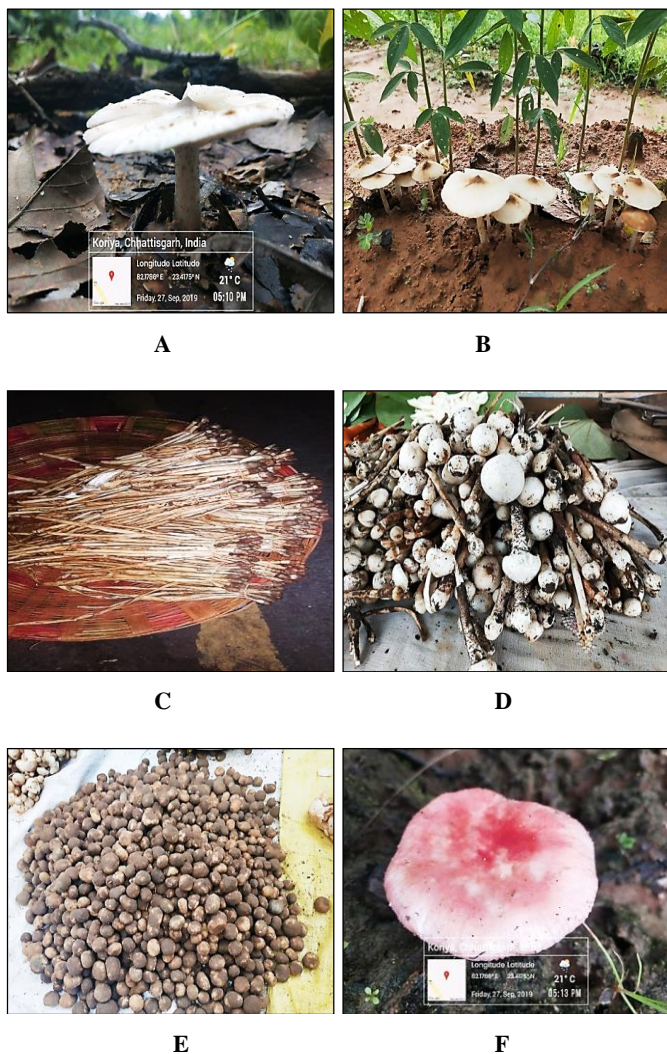


Fig 1: Wild edible mushrooms (a-d: *Termitomyces* spp., e: *Astraeus* sp. and f: *Russula* sp.)



Fig 2: Selling of wild edible mushrooms by tribal/rural peoples in local market and roadside

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