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First Report of *Morchella* –An Edible Morel from Mount Abu, Rajasthan

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Abstract: *Morchella*, commonly referred as 'guchhi' in India, belongs to family Helvellaceae. This saprophytic fungus is known throughout the world for its higher market price. Its nutritional values coupled with medicinal importance made this mushroom as a subject of interest to researchers across the world. Large scale cultivation of the ascocarps of this fungus is a distant dream to them till today. Present article reports the occurrence of this economically important morel in Rajasthan state.

Key words: *Morchella* · Guchhi · Saprophytic · Mushroom · Morel · Ascocarps

Aravalli ranges are one of the oldest mountain ranges having evolved around 1500 million years ago and extend from Gujarat through Rajasthan to Haryana-Delhi. Aravallis possess enormous floristic and ethnic diversities associated with cultural heritage and indigenous knowledge about plants and their utilization to cure various human ailments. Mount Abu is a hill station in the Aravalli range in Sirohi district of Rajasthan state in western India. It is referred to as 'an oasis in the desert' as its heights are home to rivers, lakes, waterfalls and evergreen forests. It forms a distinct rocky plateau which is 22 km long and 9 km wide. Various attempts have been made in the past to study the fungal flora of Mount Abu [1-4]. Among edible fungi, mushrooms have always remained a subject of interest for the researchers across the world because of their higher market price, nutritional value and medicinal properties [5].

Morchella Dill. ex Pers., an economically important morel mushroom, belonging to family Helvellaceae is a saprophytic fungus, commonly referred to as 'guchhi' in India. It grows on humus rich soil in the wild undisturbed areas. The price of dried morel (ascocarp) is Rs 5000/kg which makes it one of the costliest edible fungus in the world. The international trade in dried morel is estimated to be 225 million tons annually. It is known for its high nutritive value along with a unique flavor. It contains 42 percent protein on a dry weight basis and is low in calories but very rich in minerals [6]. Its metabolites are used as adaptogens and immunostimulants and are considered to be one of the most useful antitumor agents for clinical uses [6,7].

Morchella usually grows on higher altitudes, hilly landform with cool microclimate. It is reported in India from north- west Himalayan region, especially from Jammu and Kashmir, Himachal Pradesh and Uttar Pradesh [8]. It is associated with diverse ecological niches such as forest litter, mosses burnt areas and moist shady places [9]. In India, various studies were conducted for the site evaluation[10,11,12] and wild collection of *Morchella* to understand the conditions required for its cultivation. *Morchella* requires certain specific ecological conditions for the growth of ascocarps (fruiting bodies) which the researchers have still not been able to mimic under controlled conditions. Thus, large-scale cultivation of *Morchella* is a distant dream, yet to be realized.

Despite of an extensive literature of its presence in the Himalayan range of India, there is no prior report of its occurrence in Rajasthan. A recent survey was conducted in the second week of October to study the fungal diversity of Mount Abu, Rajasthan. The area covered included Achalgarh, Nakki Lake, Dhobi Ghat and Trevor's tank. This led to the surprise discovery of a species of *Morchella* in Trevor's Tank at a height of 1253.6 m and the prevailing temperature was 26 ± 2°C. The long spell of intermittent rainfall might have been conducive for the subterranean mycelium to produce the fruiting bodies. It was found growing on the side walls (Figure A) under the microclimatic conditions of *Anogeissus sericea* in

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Fig. A: *Morchella* on the side walls of Trevor's Tank (arrow marked)

Fig. B: *Morchella* (close-up view) in association with mosses and ferns.

Fig. C: Ascocarps of *Morchella* collected from the exploration site.

association with mosses and ferns on the moist and fertile soil of the forest (Figure B). This is the first report of occurrence of *Morchella* in Mount Abu, Rajasthan [8,13,14,15]. Morphological characters of this species was compared with all existing species of *Morchella* from India and it seems to be very close to *Morchella esculenta* (L.) Pers. Further work at the molecular level would, however, lead to the exact confirmation of the species.

The authors firmly believe that, beside the Himalayan ranges, the climate of Mount Abu is also suitable for its growth. Therefore, scientific efforts are required for the large- scale cultivation of this valuable morel in this area, not only for its culinary, medicinal and nutritive value but also to boost the economy of the state of Rajasthan.

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