

Gasteroid fungus *Phellorinia herculeana* (Pers.) Kreisel Eaten by Rat: New Report from Indian Thar Desert, Rajasthan

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ABSTRACT

Rats (*Rattus norvegicus*) have been found to eat the sporophore of the Gasteroid fungus, *Phellorinia herculeana* from the Indian Thar Desert, Rajasthan as new report. Feeding studies were used to validate the incidence, since rats were shown to consume fresh *P. herculeana* sporophore even when they were barely hungry. It is the first report in this direction.

Keywords: *Phellorinia herculeana*, Rat, Edible Sporophore, Indian Thar Desert, New Report

The Indian Thar Desert covers North West part of Rajasthan State with an area of about 25,000 Km² between 25°2' to 28°10' N and 69°3' to 74°0' E at 100 meters above the mean sea level. The climate of this region is characterized by extreme temperature, high wind velocity, low relative humidity, higher evapotranspiration and scanty rainfall. The occurrences of severe drought conditions do not support any appreciable vegetation. The vegetation is bushy, cacti, thorny and spinous shrubs, grasses and drought hardy slow growing tree species. Macrofungi especially Gasteroid fungi *Phellorinia herculeana* and *Podaxis pistilaris* grows lavishly in the sand dunes of Indian Thar Desert during rainy season in the month of July to September (Gehlot and Singh, 2015).

It is well documented that macrofungi are source of high protein content with minerals such as zinc, potassium, magnesium, calcium, copper, and the vitamins B, including niacin, thiamine, riboflavin, and pantothenic acid (Thatoi and Singdevsachan, 2014). The combination of these minerals, vitamins and proteins boost immunity, maintaining good health with their medicinal and nutrition attributes (Thatoi and Singdevsachan, 2014).

Phellorinia herculeana is highly nutritive consisting of 23.30% crude protein, 9.39%, carbohydrate, 1.77 % lipid, 13.07% crude fibers and a good amount of trace elements viz., potassium (0.98%), phosphorus (0.65%), calcium (0.42%), and magnesium (0.09%) along with essential amino acids viz., lysine, leucine, tyrosine, tryptophan, phenylalanine and histidine and non-essential amino acids viz., alanine, arginine, cystine, glutamine, cysteine, serine, proline and glycine (Doshi and Bohra, 2000; Gehlot *et al.*, 2016). The term mycophagy refers to the consumption of fungi by vertebrates and invertebrates. Animals consume several fungi that form macroscopic

sporocarps both above ground (epigeous: mushrooms, brackets or cups) and below ground (hypogeous: truffles). Animals are known for their powerful sense of smell and the ability to identify the smell of mushrooms specially macrofungi. The subtle aroma of macrofungi also lures animals. Many animals such as pig, deer, black bear, squirrels and other mammalian species eat macrofungi (Izzo *et al.*, 2005; Elliott *et al.*, 2022).

Incidence of eating of sporophore of *P. herculeana* by rats (*Rattus norvegicus*) was observed during the regular survey conducted for collection of sporophore of macrofungi growing in Indian Thar desert, Rajasthan. In order to verify the incidence, feeding experiments were carried out to understand whether rat prefer to eat sporophore of *P. herculeana* or it was eaten accidentally. In this experiment, rats were caught from the department store house (stowage) using a rat trap cage and brought to laboratory. Fresh sporophores of *P. herculeana* were given as diet to the trapped rat. It was observed that sporophore of *P. herculeana* was eaten by the rats when they were barely hungry (**Figure 1**).

It was a surprising observation and no such statement is available in the literature reporting the incidence of eating of sporophore of *P. herculeana* by rats (Meyer *et al.*, 2005; Elliott *et al.*, 2022) and it is the first report in this direction. It is supposed that rat has instinctively differentiated the smell of sporophore of *P. herculeana* and their strong sense of smell allows them to quickly recognize the direction of young growing sporophore of *P. herculeana*.



Figure 1: Rat eating fresh sporophores of *Phellorinia herculeana*.

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