ORIGINAL RESEARCH PAPER

Zoology

SOME MITES OCCURRING ON EDIBLE AND WILD MUSHROOMS FROM THREE DISTRICTS OF WEST BENGAL WITH THEIR ECONOMIC IMPORTANCE

KEY WORDS: Mites, Edible and Wild mushroom, Howrah, South 24-Parganas, Paschim Medinipur, West Bengal, India

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ABSTRACT

The present paper reports occurrence of 15 species of mites under 10 families and 12 genera collected from edible and wild mushrooms from three districts of West Bengal during, September 2021 to April 2022. Among the mites, there were 9 predatory and 3 each of damage causing and of uncertain association. All the species have been listed giving collection data and remarks pertaining to their importance as damage causing, predatory, or of uncertain association. The mites like *Tyrophagus putrescentiae, Fuscuropoda marginata* and *Leiodinychus krameri* were abundantly encountered and were regarded as pest species. Similarly, the mites like *Parasitus consanguineous* and *Asca biswasi* were observed to be predator in nature.

INTRODUCTION

Since ancient time, man is using mushroom as food because it is having high nutritional value as well as for having medicinal properties for therapeutic uses. Mushrooms normally are of two types edible and wild. The latter group may often prove to be poisonous and consumption of those may prove fatal to man. Mushrooms are rich with the proteins, carbohydrates, fat, amino acid, vitamins, etc. and to the vegetarian people mushrooms serve as good source of protein.

Three districts of West Bengal viz. South 24-Parganas, Howrah and Paschim Medinipur is rich with forests having different herbs, trees along with many types of mushrooms which grow there on the ground or on the rocks or on fallen trees or on the body parts of live plants. So far, few attempt has been made to study the mite's species, which occur on those mushrooms, but more studies are needed to find out that various mites are found in these mushrooms, which cause a lot of damages. Moreover, there are some beneficial mites which feed upon damage causing mites and thus help in suppressing their population. Since, information regarding occurrence of mites, occurring on different edible and wild mushrooms are available from different areas of West Bengal with a very little information from these three districts, so this study was undertaken to fulfill that gap and the present paper is based on results thereof.

Some of works on mites on mushroom from India Das (1986), Das and his co-workers from (1986-1987), Somchaudhury *et al.* (1987), Jonathan (2012), Gupta (2012) reviewed the mites occurring on mushrooms in India and reported mite species on different mushroom species, subsequently Parveen and Gupta (2019-2020), Dey (2020) added further information on mushroom mites. Acharya and Pradhan (2017) brought out a book on a wild mushroom of West Bengal giving color photographs of each of the species.

MATERIAL AND METHODS

Survey trips were conducted in three districts (Howrah, Paschim Medinipur, South 24-Parganas) of West Bengal during September 2021 to April 2022 and mushrooms were collected and brought to the laboratory in polythene bags keeping their mouths tightly closed with rubber bands. The extraction of mites and insects was done by using a Tullgren funnel (hit source- 60w electric lamp). A receiver containing 70% alcohol was fitted with stem of the funnel where the extracted mites and insects were collected. Normally 2 to 3 days were taken for complete extractions. The collected materials were sorted out under stereo-binocular microscope in the laboratory. The mounting of mites were done in Hoyer's- medium and identification was done by the help of different available standard literatures.

RESULTS AND DISCUSSION

The identification of mites and insects collected from edible and wild mushrooms from three districts of West Bengal revealed the occurrence of 15 species of mites under 10 families and 12 genera comprising of 9 predatory mite species and 3 each of damage causing and uncertain associated mites. All the collected mite species have been listed with their host/habitat records and importance, if any, are mentioned below:

Sub- Order: Oribatida(Asigmata)

Family: Acaridae

1. *Tyrophagus putrescentiae* (Schrank)
Collection Records: This mite was collected from *Polyporus* sp. and *Mycorrhaphoides stalpersii* at Howrah district of West Bengal, in December, 2021 and also from *Polyporus* sp. at South 24-Parganas district of West Bengal, in January, 2022.
Remarks: Mycelium feeding, abundantly available.
Family: Uropodidae

2. *Fuscuropoda marginata* (Koch)
Collection Records: This mite was collected from *Polyporus* sp.at Howrah district of West Bengal, in September,2021 and from *Ganoderna* sp. at South 24-Parganas district of West Bengal, in November,2021and also from *Pleurotus ostreatus* at Paschim Medinipur district of West Bengal, in December, 2022.
Remarks: Mycelium feeding, abundantly available.

3. *Leiodinychus krameria* (Canestrini)
Collection Records: This mite was collected from *Polyporus* sp. and *Mycorrhaphoides stalpersii*at Howrah district of West Bengal, in October, 2021 and also from *Polyporus* sp. at South 24-Parganas district of West Bengal, in February, 2022.
Remarks: Mycelium feeding, abundantly available.
Sub- Order: Oribatida (Excluding Astigmata)
Family: Austrachipteriidae

4. *Lamellobates* sp.
Collection Records: This mite was collected from *Pleurotus ostreatus*at Paschim Medinipur district of West Bengal, in November, 2021 and also from *Letinus* sp. and *Ganoderna* sp.at South 24-Parganas district district of West Bengal, in March, 2022.
Remarks: Quite common, association uncertain.

Family: Galumnidae

5. *Galumna flabellifera* (Von Heyden)
Collection Records: This mite was collected from *Polyporus* sp., *Letinus* sp. at South 24-Parganas district district of West Bengal, in April, 2022.
Remarks: Commonly occurred, association uncertain.
Family: Scheloribatidae

6. *Scheloribates* sp.
Collection Records: This mite was collected from *Mycorrhaphoides stalpersii* and *Polyporus* sp. at Howrah district, in September, 2021 and also from *Pleurotus ostreatus* at Paschim Medinipur district of West Bengal, in February, 2022.
Remarks: Commonly occurred, association uncertain.
II. Order: Mesostigmata
Family: Ascidae

7. *Asca biswasi* (Bhattacharya)
Collection Records: This mite was collected from *Ganoderna* sp. and *Amanita* sp. at South 24-Parganas district of West Bengal, in January, 2022.
Remarks: Frequently occur, belongs to predatory group.

8. *Asca garmani* (Hurlbutt)
Collection Records: This mite was collected from *Amanita* sp. at South 24-Parganas district of West Bengal, in September,2022 and also from *Polyporus* sp. at Howrah district of West Bengal, in February, 2022.
Remarks: Rare occurrence, belongs to predatory group.

9. *Lasioseius bengalensis* (Gupta)
Collection Records: This mite was collected from *Amanita* sp., *Polyporus* sp. and *Letinus* sp. at South 24-Parganas district of West Bengal, in March, 2022.
Remarks: Rare occurrence, belongs to predatory group.

10. *Lasioseius mcgregori* (Chant)
Collection Records: This mite was collected from *Ganoderna* sp. and *Amanita* sp. at South 24-Parganas district of West Bengal, in November, 2022.
Remarks: Rare occurrence, belongs to predatory group.

11. *Lasioseius parberlesei* (Bhattacharya)
Collection Records: This mite was collected from *Ganoderna* sp. and *Amanita* sp. at South 24-Parganas district of West Bengal, in September, 2022 and also from *Polyporus* sp. at Howrah district of West Bengal, in February, 2022.
Remarks: Common occurrence, belongs to predatory group.
Family: Laelapidae

12. *Hypoaspis aculifer* (Canestrini)
Collection Records: This mite was collected from *Polyporus* sp. and *Mycorrhaphoides stalpersii,* at Howrah district of West Bengal, in April, 2022.
Remarks: Common occurrence, belongs to predatory group.
Family: Macrochelidae

13. *Macrocheles glaber* (Muller)
Collection Records: This mite was collected from *Letinus* sp. at South 24-Parganas district, in October,2021 and also from *Pleurotus ostreatus* at Paschim Medinipur district of West Bengal, in February, 2022.
Remarks: Not very common, belongs to predatory group.
Family: Pachylaelapedae

14. *Pachylaelaps* sp.
Collection Records: This mite was collected from *Polyporus* sp. at Howrah district of West Bengal, in November, 2021.
Remarks: Occurrence casual but belongs to predatory group.
Family: Parasitidae

15. *Parasitus consanguineous* (Oudemas and Voigts)
Collection Records: This mite was collected from *Polyporus* sp. and *Mycorrhaphoides stalpersii* at Howrah district of West Bengal, in December, 2021 and also from *Amanita* sp. at South 24-Parganas district, in March, 2022.
Remarks: Frequently encountered, belongs to predatory group.

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