
SHORT COMMUNICATION

First report of Powdery Mildew on *Xanthium strumarium* L. in Tripura, North East India

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The disease severity and disease incidence of Powdery Mildew on cocklebur (*Xanthium strumarium*) was found highest (20-25 % and 60-65 % respectively) in month of January, 2022. The microscopic studies revealed that the powdery mildew of cocklebur was caused by *Podosphaera xanthii*. The same phytopathogen is reported on powdery mildew of cocklebur from different parts of subtropical and temperate regions of the India and world. But the powdery mildew on cocklebur was first time reported from Tripura state of India.

Keywords: Powdery Mildew, *Xanthium strumarium*, North East India

INTRODUCTION

Xanthium strumarium is an annual monoecious flowering plant of Asteraceae. *X. strumarium* is a very common weed having medicinal properties growing in the temperate and subtropical regions of the world including parts of India (Witt and Luke, 2017). This plant is a common weed of soybean, maize, cotton, groundnuts and rice crops. It also acts as reservoir for insect pest and diseases that may infect the main crops under favorable conditions. The cocklebur is highly poisonous if eaten by livestock and humans. In contrast to its poison nature, the extract of leaves, roots, fruits and seed of cocklebur is used to treat pruritis, lumbago, leprosy, diarrhea, constipation, allergic rhinitis, sinusitis, urticaria, rheumatoid arthritis, leukoderma, poisonous bites of insects, epilepsy, salivation, tuberculosis, bacterial and fungal infections in traditional medicine of South Asian countries (Kamboj and Saluja, 2010).

During the routine mycological survey in Dec. 2021 and Jan-Feb. 2022 typical symptoms of Powdery

Mildew were observed on plants of cocklebur at Tulashikhar, Khowai District of Tripura, North East India (GPS Latitude 24; 0; 47.1900000, Longitude 91; 39; 55.9299999, Altitude 39.64687). The initial symptoms were observed as white isolated patches on upper surface of leaves (Fig. 1A). As the disease progress white powdery mass covering was observed on stem, leaves, and floral parts of the plant. Later the white powdery mass/ covering turn to off white in colour (Fig. 1B&C). The powdery mildew severity and incidence were high (20-25 % and 60-65 % respectively) in the month of January, 2022 as compared to December, 2021 (12-15% and 35-40% respectively).

Pathogen description

The microscopic studies revealed smooth hyphae of fungus smooth, erect conidiophores, cylindrical with short foot-cells of 35 – 80 × 10 – 13 μm and conidia of ellipsoid-ovoid to doliform shape of size 25– 40 × 18–21 μm. There was only presence of the conidia and conidial chain and no observation of Chasmothecia was reported (Fig. 1D-F). On basis of morphological and microscopic analysis of diseased samples collected found to be infected

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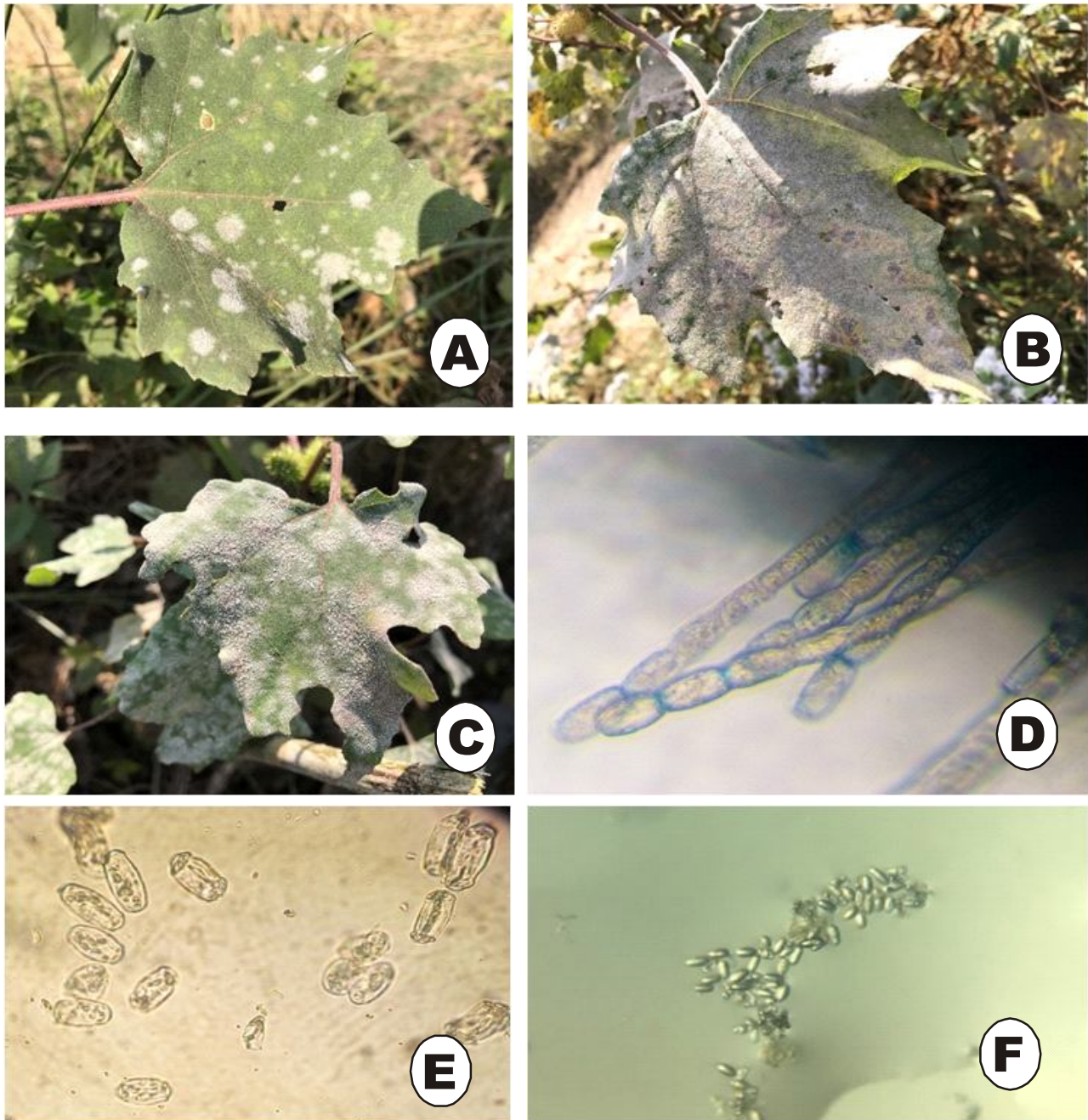


Fig.1: (A) Initial symptoms, (B&C) Severe symptoms of Powdery Mildew on *Xanthium strumarium* leaves, (D) Chain of conidia and (E&F) Conidia of *Podosphaera xanthii*

with *Podosphaera xanthii* as per the morphological keys given by Braun and Cook, (2012).

Further, the pathogenicity test was proved by spray inoculation of sporangial suspension. The sporangial suspension was prepared from the freshly infected Powdery Mildew plants in distilled water (1×10^4 sporangia/ml). The inoculated plants were kept covered under polythene bags at 16-25°C for 48 hours. The control plants were also

maintained under the same conditions which were not inoculated. After 12-14 days the symptoms of powdery mildew were start appearing in inoculated plants. Microscopic examination of the fungal conidia and conidiophores found identical to the preliminary material (Braun and Cook, 2012). To our knowledge, this is the first report of powdery mildew on *Xanthium strumarium* in Tripura (North East India).

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