

## Addition of Powdery mildew Disease to Forest plants from Jalna M.S. (India)

Navalsingh J. Todawat

Moreshwar Arts, Science and Commerce College,  
Bhokardan, Jalna - 431114 (India)  
e-mail: njtodawat@gmail.com

### Abstract

The paper deals with the survey of Powdery mildew diseases which appears in the month of December to February in winter season. During the survey of tree diseases in the year 2022 - 2024, 11 host plants were found to be affected in the study area. They were viz. *Abelmoschus esculentus*, *Cassia absus*, *Clitoria ternatea*, *Cocculus hirsutus*, *Hemidesmus indicus*, *Ipomoea carnea*, *Ipomea obscura*, *Ocimum sanctum*, *Physalis minima*, *Ricinus communis* and *Zizyphus mauritiana*. The Powdery mildew is an easily recognizable Disease; the symptoms are very apparent and are diagnostic. The symptoms, causal organism and season of occurrence were noted in the field itself.

**Key words :** *Hemidesmus*, *Ipomea*, Jalna and Powdery mildew.

**P**owdery Mildew are obligate and biotrophic fungal parasites which infect Trees, vegetables, Fruits, Grasses and weeds. These powdery mildew fungi appeared as white powder on leaf surface of plants<sup>2</sup> Trees are having a special significant importance for man, which are not only livelihood but also the place of development of his culture and civilization. It is a fact that more attention is given to agricultural crops than the trees. Trees are present in dominant ratio in the forests. All major groups of fungi have important pathogens. They cause various diseases like powdery mildews, downy mildews, smuts, rusts, leaf spots and many other diseases. Of these powdery mildew diseases are reported in present paper. Powdery mildews are commonly

observed on different plant species, and they are easy to recognize. The fungal pathogen produces conspicuous colonies on the foliage, which may coalesce and with the advancement of disease the entire leaf lamina appears white in color. The white powdery mass of the pathogen can be observed on stem, floral parts, and fruits, in addition to leaves. The infected plants may be stunted and produce fewer and smaller leaves<sup>15</sup>.

A survey of powdery mildew diseases of trees was carried out during the years 2022-2024, In the field, observation was made on few aspects, whether the disease occurs on old or young leaves or on old or young trees. The disease trees were examined carefully in the field and description was recorded, as

suggested by Rangaswami & Mahadevan<sup>12</sup>. For determining the taxonomic position of host, samples of flowers, fruit, leaves and stem were collected and studied in the laboratory<sup>8</sup>. Powdery mildew diseases occur during winter season. The disease specimens were collected in the field was preserved under the blotters in the laboratory. Morphological examinations of samples were performed in tap water and cotton blue. The specimen and causal organism were identified by using relevant literature.<sup>1,17</sup> Diseases are described with respect to their host plant, causal organism and its locality Singh<sup>14</sup>.

***Abelmoschus esculentus* (L.) Moench**

**Pathogen: *Erysiphe cichoracearum* D**

**Locality: Shelgoan**

The white powdery mycelium and spores of the fungus were visible from upper side of leaves. Infected portion of leaves turned light green to yellow. The disease increased progressively in the month of December–February. As the disease advanced, white powdery mass coated entire leaf lamina (Fig. 1). As a result of disease, drying, wilting and death of infected leaves were observed. Young weak plants are were infected than old ones. The disease was found to be spreading rapidly during winter season. Similar disease was earlier reported by Khadatare<sup>5</sup> from Dapoli.

***Cassia absus* L.**

**Pathogen: *Oidium* sp.**

**Locality: Badnapur**

The powdery mildew forms a fine

whitish net on the leaves from epiphyllous side. Initially the powdery spots were small, tiny and circular in shape, but soon those enlarged and covered the entire leaf surface (Fig. 2). Under favorable conditions, the covering of white mass was thick near leaf veins and later it got spread over all of the leaves on the host. In severe cases, affected leaves turned white, which progressed towards brown resulting in partial defoliation. The disease was more aggressive during winter season Uppal *et. al.*<sup>16</sup> had also recorded similar disease from Bombay.

***Clitoria ternatea* L.**

**Pathogen: *Oidium clitoria***

**Locality: Gokulwadi**

The disease appeared on upper side of leaves in the form of white powdery patches on young leaves, flowers and stem. On leaves, the white powdery mass was getting enlarge over entire leaf lamina, which became dusty, whereas on the lower surface yellow-brown spots were observed (Fig. 3). In severe cases, white powdery growth turned grey in color. Spread of the disease was very fast during winter season. Disease was reported for first time in Australia by Liberato and Shivas<sup>6</sup>.

***Cocculus hirsutus* L.**

**Pathogen: *Oidium* sp.**

**Locality: Dabadi**

The disease was most prevalent on young trees. The aerial parts were found to be covered with white powdery mass giving dusty appearance. The powdery mass comprised superficial growth of mycelium on upper

surface of the leaves; similarly lower surface too showed shows black-brown necrotic lesions (Fig. 4). As the disease progressed, powdery patches grew in size and finally covered the entire leaf surface. The white powdery mass turned light brown in color while the leaves turned yellow, which finally got defoliated. The disease spread was fast during winter season Uppal *et.al.*<sup>16</sup> reported similar disease.

*Hemidesmus indicus* L.

**Pathogen:** *Oidium hemidesmus*

**Locality:** Mhasla

The disease was observed on all above ground parts of the plants. A fine white powdery mass was observed on the leaves with dusty appearance. The fungus appeared as white, minute, small and floury powder on the upper side of the leaves. Young plants were more susceptible than old ones (Fig. 5). under severe cases, infected plants were defoliated, weakened following premature drying and subsequent death of infected leaves. The disease spread was rapid in cool and humid conditions. This disease occurred during winter season. The disease of this climber was earlier noted by Pawar<sup>10</sup> from Jalgoan.

*Ipomea carnea* Jacq.

**Pathogen:** *Erysiphe polygoni*

**Locality:** Rajewadi

The disease was diagnosed due to the appearance of whitish, powdery growth of the fungus on leaves. white growth was also seen on upper surface of young, infected leaves, which was completely covered with the fungal

spores and mycelium. Severe infection resulted in premature leaf fall (Fig. 6). On mature leaves, the spot turned purplish brown. At an advanced stage of disease, affected portion of leaves developed mottled yellowing, turned light green or frequently developed brownish patches. The diseased plants were found to be wilting and shedding. This is a new record of powdery mildew on *Ipomea carnea* as no literature found.

*Ipomea obscura* L.

**Pathogen:** *Erysiphe ipomoeae*.

**Locality:** Bakarwadi

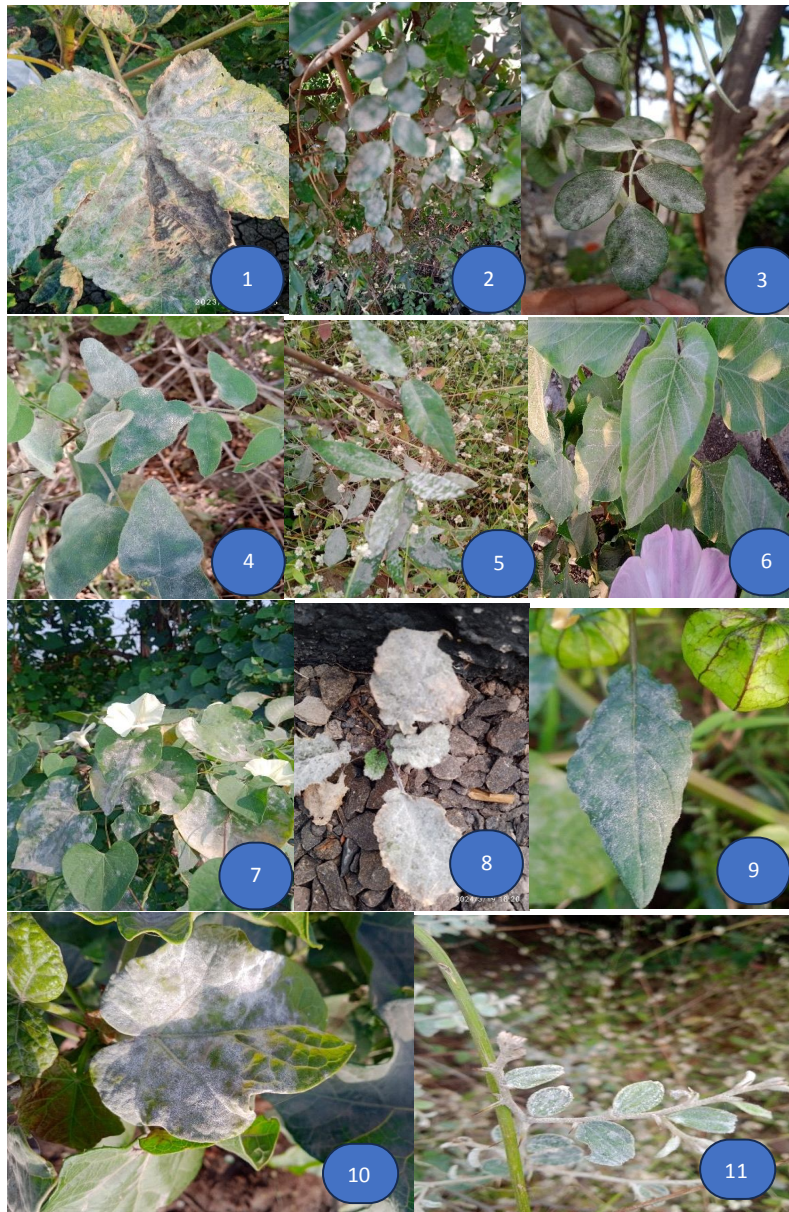
The characteristic symptom of the disease was white powdery growth on the leaves, which densely coated entire leaf surface (Fig. 7). The infection appeared mostly on young leaves. Under severe condition thin white mycelium was seen on upper side of leaves, proceeding towards leaf petiole. As a result of infection, chlorosis, wilting and defoliation occurred. The disease progressively increased during winter season. Hsiao *et.al.*<sup>4</sup> reported similar disease from Taiwan.

*Ocimum sanctum* L.

**Pathogen:** *Oidium ocimi*

**Locality:** Davargoan

The infection was epiphyllous which infecting the plants at all stages of growth. The disease was manifested in the form of white fine powdery spots on leaves and petioles. The white powdery spots were enlarged on upper surface which turned dusty, whereas on lower surface pale yellow necrotic lesions were



Figs: (1-11): 1. *Erysiphe cichoracearum* on *Abelmoschus esculentus* 2. *Oidium* sp. on *Cassia absus* 3. *Oidium clitoria* on *Clitoria ternatea* 4. *Oidium* sp. on *Cocculus hirsutus* 5. *Oidium hemidesmis* on *Hemidesmus indicus* 6. *Erysiphe polygoni* on *Ipomea carnea* 7. *Erysiphe ipomoeae* on *Ipomea obscura* 8. *Oidium ocimi* on *Ocimum sanctum* 9. *Leveillula taurica* on *Physalis minima* 10. *Oidiopsis taurica* on *Ricinus communis* 11. *Oidium erysiphoides* on *Zizyphus mauritiana*.

observed. The powdery spots were small, minute, round, oval, white and measured 2-4mm in diameter (Fig. 8). the disease resulted into arrested leaf growth chlorosis, curling and wilting of the leaves. This disease was reported during winter season Narayanaswamy & Ramakrishnan<sup>9</sup> also reported the similar disease at Coimbatore.

***Physalis minima* L.**

**Pathogen:** *Leveillula taurica*

**Locality:** Lodhewadi

The disease symptoms were observed on leaves, flower scales and inflorescence. The infection manifested by the appearance of net like white mycelium on the affected parts (Fig. 9). A white, tiny, minute and round fungal mass was seen on epiphyllous surface of leaf; while on lower side, necrotic lesions of dark brown color were observed. Under severe condition, the fungal spores became dense covering entire leaf surface. Younger leaves were found to be highly susceptible. This disease was observed during late rainy season followed by early winter season. Similar disease has been reported by Goyal *et.al.*,<sup>3</sup> from Rajasthan.

***Ricinus communis* L.**

**Pathogen:** *Oidiopsis taurica*

**Locality:** Talni

Initially this disease appeared as white fine powder on upper side of the leaves. The infection occurred on young pods. The white powdery mass appeared as minute, tiny, white – yellow coloured symptoms. (Fig. 10). In

severe cases, white powdery mass turned yellow-pink in color and the mycelium progressed towards lower side of the leaves. As the disease progressed, these powdery patches grew in size and finally covered entire leaf surface from upper side, while lower surface showed reddish-brown or purplish irregular blotches. This disease was observed during winter season by Ramakrishnan & Narsimhan<sup>11</sup>.

***Zizyphus mauritiana* Lam.**

**Pathogen:** *Oidium erysiphoides*

**Locality:** Nandkheda

Powdery mildew disease appeared in the month of October. White coloured powdery mass occurred on upper surface of leaves, while on lower side irregular chlorotic lesions were observed. At first superficial mycelium was white, but later it turned pale yellow-pink. As the disease advanced, entire leaf was infected and densely covered with thick mycelial mass along midrib (Fig. 11). In severe cases, wilting and defoliation occurred. The disease was found to be most prevalent on majority of young plants. Mitter & Tandon,<sup>7</sup> noted from Allahabad.

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