



Chapter 6
SUMMARY

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The importance of occurrence of powdery mildew on weeds in Aligarh has not been studied in its real perspective. Survey of weeds in and around Aligarh revealed that the disease occurs frequently on weeds. Weeds viz., *Parthenium hysterophorus*, *Acalypha indica*, *Ageratum conyzoides*, *Cissampelos pareira*, *Coccinia cardifolia*, *Euphorbia hirta*, *Melilotus indica*, *Solanum nigrum* and *Vernonia cineria* were commonly found to grow wildly at Aligarh and adjacent localities which showed the symptoms of powdery mildew disease. Scanning of literature revealed that the occurrence of both the powdery mildew diseases of *P. hysterophorus* was being reported, for the first time from Uttar Pradesh. Moreover, these diseases have also been earlier reported from other states of India. The powdery mildew disease of *P. hysterophorus* caused by *E. cichoracearum* var. *cichoracearum* and *S. fuliginea* has been reported from Jabalpur (M.P.) and Poona (M.S.) by Patel and Sharma (1996) and Patwardhan (1966), respectively.

The anamorphic characteristic features of the powdery mildew fungus infecting different weeds viz., *Parthenium hysterophorus*, *Acalypha indica*, *Ageratum conyzoides*, *Cissampelos pareira*, *Coccinia cardifolia*, *Euphorbia hirta*, *Melilotus indica*, *Solanum nigrum* and *Vernonia cineria* is more or less similar to that of *E. cichoracearum* var. *cichoracearum* as reported earlier by Braun (1987), Braun *et al.* (2002), Khan and Sharma (1971) and Paul and Thakur (2006). Therefore, it can be

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concluded that powdery mildew disease on these weeds is caused by *E. cichoracearum* var. *cichoracearum*.

The scanning of literature revealed that out of eight weeds, the powdery mildew disease of five weeds viz., *Solanum nigrum*, *Euphorbia hirta*, *Cissampelos pareira*, *Melilotus indica* and *Acalypha indica* caused by *E. cichoracearum* var. *cichoracearum* is being reported for the first time from India, whereas, the powdery mildew disease *A. conyzoides*, caused by *Erysiphe cichoracearum* var. *cichoracearum* is being reported for the first time from Uttar Pradesh.

The powdery mildew disease of *P. hysterophorus* caused by *Erysiphe cichoracearum* var. *cichoracearum* was found in the month of February to April in all the five localities of Aligarh viz., AMU campus, Mathura road, Agra road, Dhurra and University fort. Moreover, the maximum frequency of occurrence and intensity of the disease (++++) was recorded in the month of March followed by April and February. Similarly, the infection of powdery mildew fungus *Sphaerotheca fuliginea* on *P. hysterophorus* was found in the month of January to April only in two localities of Aligarh viz., Mathura road and Agra road. Moreover, *S. fuliginea* showed moderate to mild infection on *P. hysterophorus*.

The symptoms of powdery mildew disease caused by *E. cichoracearum* var. *cichoracearum* first appeared in the month of January on *Ageratum conyzoides* and *Euphorbia hirta*, in February on *Solanum nigrum*, *Acalypha indica* and *Vernonia cineria*, in March on *Melilotus indica*, in November on *Coccinia cardifolia* and in December on *Cissampelos pareira*.

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The severe infection of powdery mildew disease of *Acalypha indica* and *Vernonia cineria* was observed in the month of March, whereas, in the month of February it was recorded on *Ageratum conyzoides* and *Euphorbia hirta*. The severe infection of powdery mildew disease of *Cissampelos pareira* and *Coccinia cardifolia* caused by *E. cichoracearum* var. *cichoracearum* was recorded in the month of January and February. It can be concluded from the above results that the intensity and frequency of occurrence of powdery mildew disease varied on different weeds including *P. hysterophorus*.

The inoculation of *E. cichoracearum* var. *cichoracearum* and *S. fuliginea* on *P. hysterophorus* caused significant reduction in plant growth parameters (length of plant, fresh and dry weight of plant, number of head/plant, viability of pollen grain and germination of seeds) as compared to un-inoculated plants (control). Moreover, the greatest reduction of plant growth parameter was caused by *E. cichoracearum* var. *cichoracearum* as compared to *S. fuliginea*.