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FAIRY RING SPOT- A DEVASTATING DISEASE IN CARNATION

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Floriculture is one amongst the foremost potential parts of the gardening industry, being vital from aesthetic, social and economic points of view. It's the potential for generating employment opportunities round the year and earning exchange.

- Carnation (*Dianthus caryophyllus* L.) is one amongst the foremost widespread and ancient cut flowers worldwide. This species has been used extensively by breeders for hundreds of years, and as a result several cultivated hybrids exist.
- Globally, carnations have larger stipulation within the cut-flower business. However, their productivity is hampered because of varied diseases. vital diseases of carnations embrace stem rot (*Sclerotinia sclerotiorum*), wilt (*Fusarium oxysporum* f.sp. *dianthi*), doughnut spot (*Cladosporium echinulatum*) and blossom blight (*Botrytis cinerea*).
- Among them, fairy ring spot of carnation is notable and causes extensive injury.
- In 1870, Berkeley identified and named the causative organism as *Helminthosporium echinulatum*.
- Later the name was replaced as *Cladosporium echinulatum*.
- Host range of the infective agent includes carnation, sweet williams, lychnis, genus Saponaria and different members of caryophylloid dicot family. In India, the infective agent was 1st known in Himachal Pradesh..

Symptoms

- The disease causing pathogen affects the aerial organs of the plant, particularly leaves and flowers
- In leaves, minute pin head lesion as initial symptoms. Then it enlarges as circular to oval spots with dark, purplish margin with grey centre.

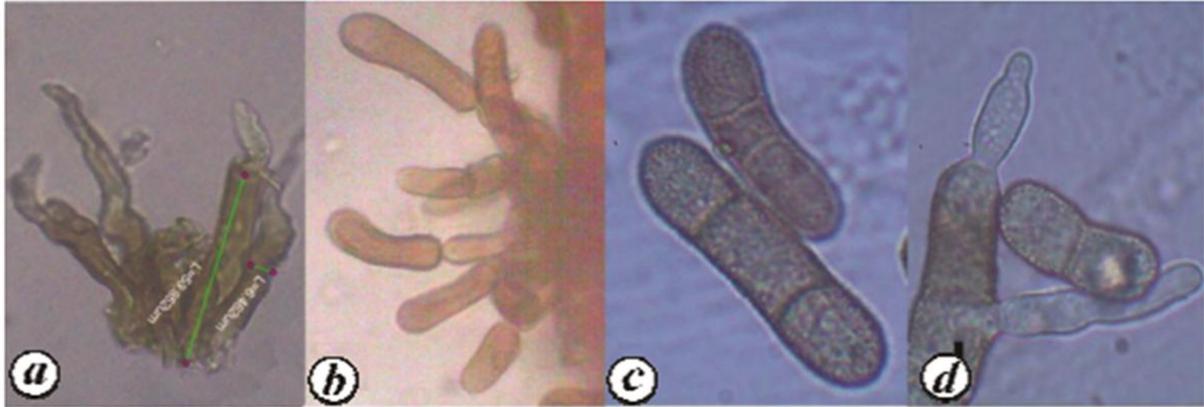


Fairy-ring Leaf Spot Symptoms on Leaves and Flower

- During rainy seasons, dark brown, spore mass was observed at the centre of the spot.
- Under extreme conditions, the spots coalesce, causing the plant to completely dry up.
- Typical dots on the calyx, epicalyx, leaf, and petiole of all plant components.
- A severe calyceinfection affected the quality of marketable flowers.
- The disease was called 'fairy ring' spot because of the brownish growth in the form of dull and dark bands.
- The spots' edges were distinct and purple to dark purplish.
- In severe situations, the spots clump together, causing the entire plant to blight and die, resulting in significant losses.

Pathogen

- ✓ Fairy ring spot – *Cladosporium echinulatum*
- ✓ Teleomorph: *Mycosphaerella dianthi*
- Conidiophore – brown, thick-walled, geniculate with granulation
- Conidia - yellowish brown, 1–4 septated, broadly ellipsoidal to cylindrical or soleiform, echinulated conidia with basal bulbous cell.



- a. Geniculate conidiophores;
- b. Geniculate conidiophore bearing yellowish brown, soleiform conidia;
- c. Echinulate conidia;
- d. Germinating conidia.

Spread and Survival

- Conidia are spread by wind, cultural practices, workers, diseased plants, or infected harvest residues

Epidemiology

- It is increased by high humidity during wet weather or wet leaves in greenhouses.

Management

- Regulating condensation in greenhouses, utilising ventilation and heating judiciously, and irrigating only in the morning would help to reduce the disease.
- For disease management, removing senescing and dead plant tissue that provides a ready substrate for *Cladosporium* sporulation.
- Mancozeb is a contact and preventative fungicide that prevents spore germination.
- Tebuconazole, propineb, captafol, zineb, tricarbamix, chlorothalonil, and triforine are examples of fungicides.
- Bioagent: *Bacillus amyloliquefaciens*, which is beneficial against carnation fairy ring spot.

Conclusion

Fairy ringspot is most important devastating disease in carnation and causes extensive damage to carnation cultivation in all over the world. By adopting the disease management practices as the initial stage, the farmers could reduce disease infestation and increase the flower production.

References

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