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## A note on some unreported diseases of medicinal plants in medicinal plants garden of Ramkrishna Mission, Narendrapur (West Bengal)

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### **Abstract**

The present paper reports the occurrence of 7 types diseases occurring on 12 species medicinal plants of Ramakrishna Mission Ashrama, Narendrapur, West Bengal, India. For each plant the disease symptoms and pathogen involved have been discussed.

**Keywords:** Medicinal plants, diseases, report, West Bengal, India

### **Introduction**

Medicinal plants are inviting increasing attention globally because of their multifarious uses like herbal drugs, preparation of nutraceuticals, phyto-pesticides, dye yielding, coloring, flavouring, cosmetics and toiletries, etc. Because of the increasing demand of the medicinal plants, their cultivation is also increasing and that, in turn, is inviting pest and disease problems. Although quite a good amount of work has been done on pest aspects but the disease aspect is still mostly unexplored. The Ramakrishna Mission Ashrama, Narendrapur is having two large medicinal plants garden having over 200 species of medicinal plants. Recent investigation revealed that many of the medicinal plants were found infected with different types of diseases which have so far not been documented properly excepting Sen *et al.* (2006) [4]. Some other works from India are Chandel *et al.* (2014) [1], Muthukumar & Venkatesh (2013) [2], Paul & Dasgupta (2014) [3], Swetha & Sundararaj (2022) [5], etc who contributed on disease aspects of medicinal plants. Hence, the objective of this paper is to study diseases in medicinal plants garden of R.K. Mission, Narendrapur and making an inventory.

### **Materials and Methods**

Surveys were conducted during November 2022 – February 2023 in the medicinal plant garden of Ramakrishna Mission Ashrama, Narendrapur and examined those for occurrence of diseases. The plant samples were examined under stereo-binocular microscope. So far, 12 medicinal plants were found infected with different types of diseases.

### **Results and Discussion**

As many as 12 medicinal plants were found diseased having different damage symptoms and those are mentioned below plant wise along with their causative agents:

**I. Plant name:** *Rauwolfia serpentina* Benth ex Kurz (Fam. Apocynaceae)

**Common name of the disease:** Leaf spot disease

**Symptoms:** Appearance of dark brown spots on the upper surface of leaf especially towards the leaf margin were observed during December 2022-January 2023. On the ventral surface, the spots were less brownish though also were towards the margin. At the initial stage, the spots were yellowish brown.

**Causative agent:** *Cercospora rouwolfiae*

**II. Plant name:** *Eupatorium triplinerve* Vahl. (Fam. Asteraceae)

**Common name of the disease:** Leaf spot disease

**Symptoms:** Appearance of purplish bronze spots on the entire upper surface of leaves and such leaves gradually became curved from tip downwards. The infestation level was very heavy in the field and its occurrence could be noticed during the entire cropping period, being maximum during December 2022- January 2023. The occurrence of this disease was earlier unknown on this plant.

**Causative agent:** *Cercospora* sp.

**III. Plant name:** *Murraya koenigii* (L.) Spring (Fam. Rutaceae)

**Common name of the disease:** Black necrotic spots on leaves

**Symptoms:** Necrotic spots appeared scatterdly on upper surface of leaves, but no such symptoms were observed on under surface of leaves. In some cases, the spots coalesced to form blackish patch.

**Causative agent:** *Colletotrichum gloeosporoides*

**IV. Plant name:** *Cymbopogon martinii* (Roxb.) Wats. (Fam. Poaceae)

**Common name of the disease:** Rust disease

**Symptoms:** These symptoms included purplish patch which spread all along the leaf surface. The leaf tip became narrow. The ventral surface had purplish faint stripes. Majority of the plants in the field had shown this type of symptom. In case of heavy attack, the leaves dried up.

**Causative agent:** *Puccinia nakanishikii*

**V. Plant name:** *Lawsonia inermis* L. (Fam. Lythraceae)

**Common name of the disease:** Curvularia leaf spot

**Symptoms:** In case of severe attack, the entire leaf was covered with blackish mould-like structure which fully covered the upper surface of leaf as black patch. On the lower surface of the leaf, black spots appeared scatterdly on either side of the midrib. The symptoms were observed during February 2023.

**Causative agent:** *Curvularia lunata*

**VI. Plant name:** *Theobroma cacao* L. (Fam. Sterculiaceae)

**Common name of the disease:** Cercospora leaf spot

**Symptoms:** Appearance of light brownish stains on upper surface of leaf with yellowish leaf lamina. Such symptoms were also present on lower surface of leaf during January-February 2023. The diseased leaf looked unhealthy.

**Causative agent:** *Cercospora* sp.

**VII. Plant name:** *Plectranthus amboinicus* Lour. (Fam. Lamiaceae)

**Common name of the disease:** Alternaria leaf spot

**Symptoms:** Initially the leaf became yellowish with appearance of brownish spots on dorsal surface as well as on ventral surface. Subsequently, the spots coalesced to form prominent brownish patch more towards left margin. In case of the matured leaf, such symptoms were more prominent and the petiolar attachment of leaves was so loose that a simple touch to the leaf caused defoliation. The occurrence of this disease on ajwain plant was not reported earlier. Its symptoms were seen during November – December 2022.

**Causative agent:** *Alternaria alternata*

**VIII. Plant name:** *Wedelia chinensis* (Osbeck) Merr. (Fam. Asteraceae)

**Common name of the disease:** Rust disease

**Symptoms:** The entire field though was more or less unaffected but rusty symptoms were observed scatterdly in some plants. These spots appeared more prominently on the under surface of the leaf as sunken brownish patch towards the apical 1/3 part of the leaf. On the ventral surface, such spots were not observed. This type of infected plants became unhealthy and could be easily spotted out. The symptoms were visible during early part of February, 2023.

**Causative agent:** *Puccinia* sp.

**IX. Plant name:** *Trigonella foenum-graecum* L. (Fam. Fabaceae)

**Common name of the disease:** Cercospora leaf spot

**Symptoms:** At the initial stage, chlorotic symptoms appeared on the upper surface of leaf. Subsequently, irregular shaped brownish oval patches appeared both on the upper and lower leaf surfaces. Later, the plants became unhealthy and dried up. This symptom was visible in the field during February, 2023.

**Causative agent:** *Cercospora* sp.

**X. Plant name:** *Piper longum* L. (Fam. Piperaceae)

**Common name of the disease:** Phytophthora leaf blight

**Symptoms:** Initially, on dorsal surface of the leaf, brownish lesions appeared towards apical 1/3 part of leaf margin. Subsequently, those spots coalesced to form brownish patches. Similar spots were also seen on ventral surface. The disease symptoms were observed during November 2022 – February 2023.

**Causative agent:** *Phytophthora* sp.

**XI. Plant name:** *Andrographis paniculate* (Burm. f.) Wall. ex Nees. (Fam. Acanthaceae)

**Common name of the disease:** Cercospora leaf spot

**Symptoms:** The disease symptoms included appearance of purplish bronze patches on both surfaces of leaf during January – February 2023, but that was more prominent on the upper surface of leaf. The basal part of leaf became slightly malformed. All such plants could be easily identified in the field.

**Causative agent:** *Cercospora* sp.

**XII. Plant name:** *Coffea arabica* L. (Fam. Rubiaceae)

**Common name of the disease:** Rust disease

**Symptoms:** The infected leaf lamina became yellowish with circular brownish spots, 8-10 in number, appeared on the upper surface of leaf. On the contrary, the lower surface remained yellowish brown. Besides, the entire leaf margin also became slight brownish. The petiolar attachment become loose and on slightest disturbance the leaf fall occurred.

**Causative agent:** *Hemileia vastatrix*

**Photographs showing diseased and healthy medicinal plants**



I.



II.



III.



IV.



V.



VI.

Explanation of Photographs (Photographs on left side represent damaged plants, photographs on right side represents undamaged plants):

- I. Leaf spot disease of *Rauwolfia serpentina*
- II. Leaf spot disease of *Eupatorium triplinerve*
- III. Black necrotic spots on leaves of *Murraya koenigii*
- IV. Rust disease of *Cymbopogon martinii*
- V. Curvularia leaf spot of *Lawsonia inermis*
- VI. *Cercospora* leaf spot of *Theobroma cacao*

## Photographs showing diseased and healthy medicinal plants



VII.



VIII.



IX.



X.



XI.



XII.

Explanation of Photographs (Photographs on left side represent damaged plants, photographs on right side represent undamaged plants):

- VII. *Alternaria* leaf spot of *Plectranthus amboinicus*
- VIII. Rust disease of *Wedelia chinensis*
- IX. *Cercospora* leaf spot of *Trigonella foenum-graecum*
- X. *Phytophthora* leaf blight of *Piper longum*
- XI. *Cercospora* leaf spot of *Andrographis paniculate*
- XII. Rust disease of *Coffea arabica*

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### References

1. Chandel S, Dubey K, Kaushal T. Major diseases of medicinal and aromatic plants recorded in Himachal Pradesh-India. *J Pl. Dis. Sci.* 2014;9(2):145-153.
2. Muthukumar A, Venkatesh A. A new record of leaf blight of ribben plant caused by *Alternaria alternata* in India. *Jour. New Biol. Rept.* 2013;2(3):228-230.
3. Paul PC, Dasgupta B. A new report of tip blight and

leaf spot of *Acorus calamus* caused by *Nigrospora oryzae* from West Bengal, India. *Bioscan.* 2014;9(1):355-357.

4. Sen S, Maiti CK, Acharya K. Fungal diseases of some commercially important medicinal plants-A review. In: *Herbs for health care and nutritional benefits an assessment for sustainable utilization.* National seminar, Ramakrishna Mission Ashrama, Narendrapur, 24 December; c2006. (Gupta, S.K & Mitra, B.R: eds).
5. Swetha P, Sundararaj R. Diseases of medicinal plants cultivated in Karnataka and their management. In: *Medicinal plants* (eds. Kumar, Sanjeet); c2022. DOI No. 10.5772/intechopen.104632.