Diseases of Tea leaves

NAME : I.N.MAPALAGAMA
REGISTRATION NO : 19APP3885
SUPERVISOR : PROF.R.M.K.T.RATHNAYAKE

Tea Leaves Diseases

1. Algal leaf spot

Common Name:

- Algal leaf spots, red rust (tea and coffee)

Scientific Name:

- Cephaleuros virescens, Cephaleuros minimus, Cephaleuros parasiticus

Symptoms:

- Green to orange spots develop, which are round, 2-4 mm diameter, flattened with furry growth and indistinct margins

Management:

- Prune low hanging branches, which on many crops are the first to show signs of the disease
- Importantly, improve growing conditions, as follows:
  - Drainage: If the ground becomes waterlogged and this is affecting growth, improve drainage.
  - Nutrition: Consider the addition of mineral fertilizer, if the growth of the trees is poor.
  - Remove weeds from around the trees to reduce competition for nutrients, and also to reduce humidity.

References:

[1]
G. Jackson, "Algal leaf spot (148)," *Lucidcentral.org*, 2017. https://apps.lucidcentral.org/pppw_v10/text/web_full/entities/algal_leaf_spot_148.htm# (accessed Aug. 30, 2024).
[2]
"Tea | Diseases and Pests, Description, Uses, Propagation," *plantvillage.psu.edu*. https://plantvillage.psu.edu/topics/tea/infos

2. Anthracnose

Common Name:

- Dieback

Scientific Name:

- Colletotrichum lindemuthianum

Symptoms:

- The infected leaves were observed to be gray sunken or shrunk necrotic lesions

- the pathogens made the leaves partially withered, fragile, or easily broken, compared to the healthy leaf

Management:

- Application of fungicides. While chemical treatments are effective, they raise concerns regarding environmental impact and the development of fungicide resistance in pathogens
- Regularly removing infected leaves and maintaining good airflow around the plants to minimize humidity, which favors fungal growth.Drainage: If the ground becomes waterlogged and this is affecting growth, improve drainage.
- Breeding and planting tea cultivars that are resistant to anthracnose is considered one of the most effective long-term strategies for managing the disease

References:

[1]
Anburaj Jeyaraj, Tamilselvi Elango, X. Chen, J. Zhuang, Y. Wang, and X. Li, "Advances in understanding the mechanism of resistance to anthracnose and induced defence response in tea plants," *Molecular Plant Pathology*, vol. 24, no. 10, pp. 1330–1346, Jul. 2023, doi: https://doi.org/10.1111/mpp.13354.

[2]
Y. -L. Shi *et al.*, "Involvement of Salicylic Acid in Anthracnose Infection in Tea Plants Revealed by Transcriptome Profiling," *International Journal of Molecular Sciences*, vol. 20, no. 10, p. 2439, Jan. 2019, doi: https://doi.org/10.3390/ijms20102439.

3. Bird's eye spot

Common Name:

- bird's eye spot

Scientific Name:

- Cercospora theae

Symptoms:

- Round, gray-brown spots approximately 10mm in diameter on mature tea leaves
- The spots have a lighter surrounding tissue that suggests the appearance of a bird's eye

Management:

- Proper sanitation practices to remove infected plant material and prevent spread
- Judicious use of fungicides registered for use on tea to protect plants
- Promoting overall plant health through proper nutrition and cultural practices

References:

[1]

N. Dechassa, G. Gidissa, L. Hagos, M. Zakir, L. Beksisa, and M. Adisu, “Survey of Tea (*Camellia sinensis*) Diseases in Southwestern Ethiopia,” *American Journal of BioScience*, vol. 8, no. 6, p. 139, 2020, doi: https://doi.org/10.11648/j.ajbio.20200806.11.

[2]
Ganga Devi Sinniah and N. Mahadevan, “Disease Diagnosis in Tea (Camellia sinensis (L.) Kuntze): Challenges and the Way Forward,” *IntechOpen eBooks*, Jun. 2024, doi: https://doi.org/10.5772/intechopen.1004903.

4. Brown blight

Common Name:

- Brown blight

Scientific Name:

- Colletotrichum

Symptoms:

- Small, oval, pale yellow-green spots first appear on young leaves, often surrounded by a narrow, yellow zone
- As the spots grow, they turn brown or gray and concentric rings with scattered, tiny black dots become visible

Management:

- Avoid plant stress by growing tea bushes with adequate spacing to permit air circulation and reduce humidity
- Prune out infected or dead branches from the plant canopy
- Remove all infected leaves and flowers from plants

References:

[1]
M. Guo, Y. Pan, Y. Dai, and Z. Gao, “First Report of Brown Blight Disease Caused by *Colletotrichum gloeosporioides* on *Camellia sinensis* in Anhui Province, China,” *Plant Disease*, vol. 98, no. 2, pp. 284–284, Feb. 2014, doi: https://doi.org/10.1094/pdis-08-13-0896-pdn.

[2]
Ganga Devi Sinniah and N. Mahadevan, “Disease Diagnosis in Tea (Camellia sinensis (L.) Kuntze): Challenges and the Way Forward,” *IntechOpen eBooks*, Jun. 2024, doi: https://doi.org/10.5772/intechopen.1004903.

5. Red Spot

Common Name:

- Red spot

Scientific Name:

- Cephaleuros parasiticus

Symptoms:

- Algae manifest as red spots (5–7 mm) on leaf, imparting a rusty appearance.
- Spots can become lichenized and turn in to white in color.
- Infected stems become more rigid and produce longitudinal cracks.

Management:

- Timing is crucial; fungicides should be applied before symptoms appear for effective control
- Use appropriate foliar or systemic fungicides to protect the plants, especially during periods of high moisture when the risk of infection increases
- Regularly inspect plants for symptoms and remove any infected leaves or branches to prevent further spread of the disease

References:

[1]
"Tea | Diseases and Pests, Description, Uses, Propagation," *plantvillage.psu.edu*. https://plantvillage.psu.edu/topics/tea/infos

[2]
Ganga Devi Sinniah and N. Mahadevan, "Disease Diagnosis in Tea (Camellia sinensis (L.) Kuntze): Challenges and the Way Forward," *IntechOpen eBooks*, Jun. 2024, doi: https://doi.org/10.5772/intechopen.1004903.