Diseases of Edible Aroids in India and their Management

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Aroids: Plants belonging to the family Araceae
Among cultivable tropical tuber crops, the following are commercially cultivated edible aroids in India:

1. Amorphophallus paeonifolius
2. Colocasia (C.esculenta var.esculenta and C.esculenta var.antiquorum): Dasheen and Eddoe types
3. Xanthosoma (Tannia)
4. Alocasia
**Amorphophallus Mosaic Disease**

Primary spread is through planting material. Secondary spread of the disease is through insect vectors, *Myzus persicae* Sulz., *Aphis gossypii* Glover, *A. craccivora* Koch. and *Pentalonia nigronervosa* coq.

Disease symptoms include mosaic mottling of leaves and distortion of leaf lamina. Corms produced by the mottled plants are much smaller than those without mottled leaves.

**Management:** Use of virus free planting material, spraying of systemic insecticides to prevent secondary spread.

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**Leaf blight caused by Phytophthora colocasiae**

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**Collar rot of Amorphophallus**

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**Storage diseases in Amorphophallus**
Management of Amorphophallus Diseases

- Use of healthy planting material without any apparent rotting symptoms
- Treatment of the whole/cut tubers with cow-dung slurry mixed with Trichoderma before planting
- Application of Trichoderma enriched compost in pits/field
- Application of neem-cake at 250g/pit
- One foliar spray with Mancozeb (0.2%) and fenithion (0.05%) at 60 and 90 DAP

Major taro types in India

Taro Cultivation

Field view of a healthy colocasia crop
Field View of *Colocasia esculenta* (L.) Scott.

Newly developing spots due to *Phytophthora colocasiae* infection

Petiole infection leads to collapse of leaf lamina

Beginning of the devastation by *Phytophthora* leaf blight
A fully devastated colocasia plantation

Whitish fungal growth around the spots

Phytophthora colocasiae: The causal organism of Taro Leaf Blight

Primary inoculum
- Infected tubers
- Self sown crop
- Soil?

Secondary inoculum
- Sporangia
- Zoosporangia

Congenial weather
- Intermittent rain,
- High humidity,
- Temp 25 – 28 degree C

Conditions for EPIDEMIC
- Abundant Inoculum,
- Favourable weather,
- Susceptible cultivar

Infected crop
Resistance in Taro Against Taro Leaf Blight

A TLB resistant variety “Muktakeshi”

Leaf spots in resistant variety

Observation number

Muktakeshi
Kuji
Bhubaneswar Local
Topi
Kalasaru
Jhankhiri

Intercropping of colocasia with yam

Percentage leaf area damaged due to taro leaf blight
Intercropping of Colocasia with Turmeric

Intercropping with non-host crops

Effect of date of planting on taro leaf blight and tuber yield

Hypersensitive reaction in resistant, moderately resistant and susceptible cultivars
Inhibition of *P. colocasiae* in soil by Trichoderma

![](image)

- T1 = *Trichoderma viridae*
- T2 = *T. herzianum*
- T3 = *T. pseudococci*

Inhibition of *P. colocasiae* by Rhizobacterium species

![](image)

Strategies for the Management of Phytophthora leaf blight disease of colocasia

- Use of healthy planting material
- Use of tolerant/resistant cultivars, if available
- Suitable adjustment in planting dates to escape disease/crucial stage
- Field sanitation and removal of infected leaves
- Intercropping with non-host crops
- Removal of self-sown plants from the vicinity
- Preventive sprays with Mancozeb (Protective) and Metalaxyl (Systemic) as a last resort

Other problems in taro cultivation
Alocasia leaves

Thank You