



**Fig. 1.** a Pyrethrum flower, b *Paraphoma vinacea* colony on oatmeal agar (OA), c conidiospores of *P. vinacea*, d chlamydospores in chains, e microtome section of a pycnidium, f crown discoloration caused by *P. vinacea* in the field.

**Common Name:** *Paraphoma* **Host Name:** *Tanacetum cinerariifolium* (Pyrethrum)

**Disease:** Paraphoma crown rot of pyrethrum

**Classification:** Kingdom:Fungi Phylum:Ascomycota Class:Dothidiomycetes  
Order:Pleosporales Family:Phaeosphaeriaceae Genus:*Paraphoma*

*Paraphoma vinacea* was first identified from infected root, crown and basal petiole tissues of pyrethrum in 2014 in Tasmania. Paraphoma crown rot is a severe pathogen of pyrethrum causing crown discoloration and suppressed growth. Diseased pyrethrum plants have weak root growth and in some cases no feeder roots. The pathogen is known to be soil-borne. However, it is able to cause leaf lesions *in vitro*.

### Etymology:

Named after the red vinaceous colour it produces on selective media of oatmeal agar (OA), malt extract agar (MEA) and cherry decoction agar (CHA).

### Host Range:

*Paraphoma vinacea* has been identified as a new pathogen of pyrethrum and has not been reported to infect other members of the Asteraceae. The related species, *P. chrysanthemicola* was reported as a root pathogen of *Chrysanthemum morifolium* in 1967. Two further *Paraphoma* species, *P. chlamydocopiosa* and *P. pye* have recently been reported as foliar pathogens of pyrethrum.

### Biology and Ecology:

*Paraphoma vinacea* was isolated from necrotic crown tissues, roots and basal petioles of yield-decline affected pyrethrum plants in northern Tasmania and Ballarat, Victoria. *Paraphoma vinacea* is easily dispersed by water splash from the pycnidia formed at the base of flower stems where they are attached to the crown.

### Impact:

Pyrethrum is used for production of natural insecticides, pyrethrins, which are extracted from the seeds in flower heads. Pyrethrum plants infected with *P. vinacea* have reduced flower production.

The pathogen reduces above, below ground and total biomass of the infected pyrethrum plants; and is assumed to play an important role in pyrethrum yield-decline.

### Distribution:

*Paraphoma vinacea* can be easily dispersed by water splash in the field.

### Management options:

- Hygiene practices such as removal of dead and infected plant material from the field
- Crop rotation

### Further Reading:

Moslemi et al. (2016). Paraphoma crown rot of pyrethrum (*Tanacetum cinerariifolium*). Plant Disease 100(12):2363-2369.

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