Phyllosticta beaumarisii sp. nov.: A cause of Leafspot on *Muehlenbeckia adpressa*

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Muehlenbeckia adpressa (Labill.) Meissn. is a vigorous climber or ground cover which scrambles over other plants. It is a widespread coastal plant endemic to Southern Australia where it is commonly known as "Climbing lignum" or "Macqaurie vine"(2).

The species produces rounded leaves, 2 to 6 cm in length, often cordate at the base and crinkled around the margins. Insignificant yellow-green flowers are borne in short axillary racemes. Plants are grown from seed or can be easily propagated by stem cuttings. *M. adpressa* grows vigorously during spring and autumn, slowly during winter and is virtually dormant during a hot summer.

Because of its rapid growth and hardiness, *M. adpressa* is useful for fence or embankment cover in coastal situations (5).

In July 1984, a patch of badly diseased *M. adpressa* was observed at Beaumaris, Victoria on a cliff top, adjacent to Port Phillip Bay. Virtually all mature leaves of plants in an area of 10 sq. m. contained distinctive necrotic spots. Spots were roughly circular to elliptical in shape and were tan in colour with a maroon margin. Individual spots reached a diameter of 11 mm but frequently coalesced to form a larger area of necrosis. Spots appeared to be randomly distributed, were visible from both sides of leaves and sometimes contained numerous pycnidia barely visible to the naked eye (Fig. 1).

Numerous lesions were excised, washed, surface sterilized and placed on agar media. A variety of fungi developed in culture including species of *Epicoccum, Alternaria, Penicillium, Aspergillus, Fusarium* and several unidentified yeasts. The only fungi producing pycnidia in culture were *Phoma macrostoma* Mont. and a slow growing *Phyllosticta* sp. which had pycnidia similar to those present within the necrotic lesions. Extractions from very tiny lesions, or from pycnidia in diseased leaf tissue, yielded pure cultures of this *Phyllosticta* sp..

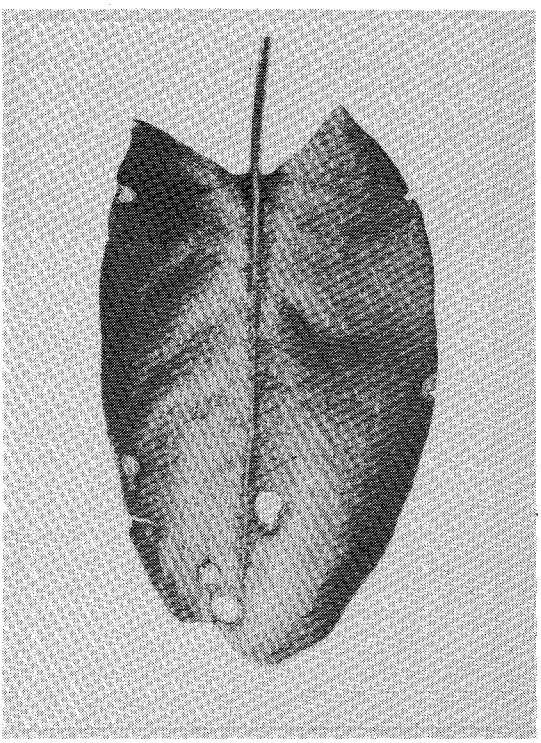

Fig. 1. Pycnidia of *Phyllostica beaumarisii* sp. nov. and necrotic spots on leaf of *Meuhlenbeckia adpressa.* (x2)

Diseased *M. adpressa* leaves have since been studied from a range of localities around the perimeter of Port Phillip Bay: Aspendale, Mentone, Hampton and Sandringham. The disease has also been observed at Cape Schanck and Inverloch on the Victorian South Coast.

The disease is prevalent during autumn and winter. Mature diseased leaves age and abscise when a new flush of growth occurs in spring. Infection is apparent on new leaves in the following autumn.

Artificial application of *Phyllosticta* conidia to leaves of *M. adpressa* in the field resulted in infection and symptom development. Tests with *Phoma macrostoma* conidia proved negative.

Description of the fungus

The *Phyllosticta* sp. produces dark brown to black pycnidia, globose when young, becoming pyriform at maturity and developing a prominent papillate ostiole. Mature pycnidia are unilocular, 110-260 m in height x 110-225 m diameter (Ave. 175 x 155 m) with an ostiole up to 20 m diameter. Pycnidial walls are pseudoparenchymatous and are slightly darker in the region adjacent to the ostiole. Conidia are one-celled, hyaline, ovoid-ellipsoidal to occasionally pyriform, 7.5-15 m in length x 6.5-8.75 m wide (Ave. 10.5 x 7.5 m). Conidia have a hyaline, filiform apical appendage approx. 2-7 m long which is readily deciduous. Conidiogenous cells are not distinctive. The fungus grows slowly in culture, producing hyaline hyphae which quickly darken forming a crust-like mycelium. This bears closely packed light brown immature pycnidia. Pycnidia are closely packed near the point of inoculation, forming a black mat at maturity, but are more sparsely arranged over the remainder of the mycelium. The fungus grows vigorously on P.D.A. and carnation agar but poorly on oatmeal or cornmeal agar. No sexual phase has been detected.

With over 2,000 spp. recorded (4), identification of *Phyllosticta* species can be difficult.

Two species of *Phyllosticta* have been described on *Muehlenbeckia* species. Cabellero (1) described Phyllosticta (Macrophyllosticta) muehlenbeckiana from cladodes of *M. platycladoes* in Spain. Shreemali (3) described *P. muehlenbeckiae* also from cladodes of *M. platycladoes* in Rajasthan, India. Illustrations and descriptions of these two fungi are distinctly different from the *Phyllosticta* in this study.

A culture was sent to C.M.I. and examined by Dr E. Punithalingam who believes that the *Phyllosticta* on *M. adpressa* is an undescribed species (pers. comm.). It is described here as a new species, *Phyllosticta beaumarisii* sp. nov.

Diagnosis

Pycnidia atro-fusca ad nigra, globosa dum juniora; maturitate pyriformia atque ostiolum papillatum prominens facientia, uniloculata, 110-260 m alt. x 110-225 m diam. (med. 175 x 155 m) ostiolo ad 20 m diam. Pycnidiorum parietes pseudoparenchymati, prope ostiolum parum fuscati. Conidia unicellularia, hyalina, ovoideo-ellipsoidea ad nonnumquam pyriformia, 7.5-15 m long. x 6.5-8.75 m lat. (med. 10.5 x 7.5 m). Conidium appendicula filiformi hyalina ad apicem praeditum. Cellulae conidiogenes haud distinctae. In culturis format hyphas hyalinas quae prompte nigrescunt, et mycelium crustaceum lente crescit multo conidia mox prodit. Cultura typi et folia morbosa hospitis *(Muehlenbeckiae adpressae)*, in collectione V.P.R.I., Burnley, Victoria.

A culture has also been deposited at C.M.I., Kew, England. Herb. I.M.I. number 298,910.

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