



Nursery & Garden Industry  
Queensland

## Kangaroo paw (*Anigozanthos* spp.): Ink disease

*The plant genus Anigozanthos consists of 11 different species which are endemic to Western Australia. Commonly known as kangaroo paw, both species and hybrids are used for domestic and export cut flower production and are also important as ornamental native plants that attract bees, nectar-eating birds and butterflies into the garden.*

Several foliar diseases of kangaroo paws are serious enough to make the plants unsellable, but the major foliar disease is ink disease or ink spot. Ink disease may be caused by *Alternaria alternata* which is a fungal pathogen that has been identified on kangaroo paws plants with ink disease symptoms. The symptoms of ink disease are large black blotches on the leaves.

The wild kangaroo paw, *Anigozanthos flavidus*, is considered to be highly resistant to ink disease and is often used as a pollen parent in hybridisation of species to produce disease-resistant cultivars. Unfortunately, a larger leaf blotch symptom has now been reported on some cultivars with an *Anigozanthos flavidus* parent and it is thought that this is caused by a new *Alternaria* species, now described as *Alternaria anigozanthi*. This new disease is very similar to ink disease leaf symptoms and is commonly known as big blotch disease. Generally, hybrids which have *Anigozanthos flavidus* as a parent are the most successful to grow.

Plants that are grown in cool, moist climates seem to be more susceptible to ink disease; however, plants grown in some production nurseries in northern Queensland in 2013 have shown leaf symptoms that might be ink disease or big blotch disease.

In March 2013, I sampled some kangaroo paw tissue culture plantlets that had dark blotches on the leaves. Because the plantlets I sampled had

been treated with fungicides, the pathologist was unable to isolate any fungal structures from the plantlets. However, when I revisited the nursery 8 weeks later to follow-up on the health of the plantlets from this batch that had now been transplanted into containers, all plants in the batch had symptoms of ink disease or big blotch (Figures 1 and 2).



Figures 1 and 2. *Anigozanthos* cultivar plantlets with suspected ink disease. Townsville, March 2013 (images by NGIQ)



**Figure 3.** *Anigozanthos* cultivar plants from same batch of tissue-cultured plantlets as shown in Figures 1 and 2, photographed 8 weeks later. The plantlets did not 'grow out' of the dark blotches on the leaves and were unsellable. Townsville, May 2013 (image by NGIQ)

Unfortunately, ink disease is difficult to prevent. For this reason, it is recommended that plants are grown in high quality, free draining growing media with optimal nutrition, irrigation and air flow to prevent disease symptoms occurring. It has been reported that plants with good vigour show a higher tolerance to this disease. However, it is known that phosphorus toxicity symptoms are common in Kangaroo Paws and this can look like ink disease because the leaf tips turn black and this blackening spreads down the leaf until the leaf dies.

Protectant fungicides have been shown to reduce the incidence of ink disease and plants that present with leaf blotch symptoms may be given a fungicide treatment, such as copper oxychloride or mancozeb, to help retard the disease. The use of disease resistant cultivars is also recommended. Importantly, all diseased plant parts should be removed from the nursery and surfaces and equipment sterilised to prevent the spread of fungal spores through the nursery.

#### **References:**

Australasian Plant Pathology; Australian National Botanic Gardens; Western Australia Department of Agriculture, APVMA

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