

THAI DISEASE OF VANDAS AND THEIR RELATIVES.

Have you ever looked at your Vandas and thought they looked more like a bunch of speckled palm trees rather than a collection of healthy orchids? I'm sure we've all seen it – tall, bare stalks topped with a few, black-streaked leaves. Almost invariably, the effect we see is the result of infection with a fungus called *Guignardia*. The disease produced by the fungus is commonly referred to as Thai disease. It is without doubt one of the worst pathogens of the group of plants we generally refer to as Vandas. Unless the infection is controlled, infected plants will remain in a weakened condition, will therefore grow slowly and will not flower to anywhere near their genetic potential. In some cases the plants may die, either as a direct result of the *Guignardia* infection or from other fungal infections that attack the weakened plants. If we are going to grow Vandas to their full potential we must be aware of the disease and its symptoms. What then should we be looking for?

SYMPTOMS

Initial infections may start on the upper or lower surface of the leaf as tiny, dark-purple, elongated streaks. These lesions are oriented along the leaf parallel to the veins. As the streaks grow, they form elongated, diamond-shaped lesions that can be up to an inch or so long. These lesions often coalesce to form irregular areas that may engulf a large part of the leaf. The lesion may also burst through to the opposite surface of the leaf. Over time, the centres of the lesions turn tan or dark brown sometimes with a silvery overlay. Some lesions will stay dark purple. These lesions disrupt the host tissue and can severely reduce the photosynthetic area of the host. They are also the site of spore production of the fungus. *Guignardia* reproduces by both sexual and asexual spores. Initially, asexual spores (conidia) are formed in the fruiting bodies (pycnidia) that form in the lesions. The early mycologists who studied the fungus named it as *Phyllosticta*. They were unaware of its sexual preference. *Phyllosticta* infects a wide range of orchid genera including the Cattleya alliance, Dendrobiums and the Oncidium alliance. Hence the need to maintain good disease control in all of your orchid plants.

The conidia are released when there is water on the leaf surface. They also require water to germinate. It is therefore much easier to control the spread of infection if the plants are grown under a fibreglass roof or similar suitable cover. The fungus attacks leaves of any age but the infection may not show for several weeks or even months. The lesions are therefore more commonly seen on the older leaves. Severely infected leaves may remain attached to the plant for several months and continue to produce spores that can infect the emerging leaves or other nearby orchids. Where practicable, they should be cut off and disposed of. Not long after the pycnidia are formed, the fungus goes into a sexual frenzy and produces different fruiting bodies (peritheca) that produce packets of sexual spores. The mycologists who studied this part of the life-cycle of the fungus knew all about sex and named the fungus as *Guignardia*. It is now recognised that despite the cross-dressing, *Phyllosticta* and *Guignardia* (the correct name) are one and the same fungus. To the average old orchid grower, it doesn't matter much whether sex is involved or not, the result is the same..... *infected again!!* Soooooo.....How do we control this cursed blight?

CONTROL

Keeping the orchid house pathogen-free is of primary importance. Newly acquired orchid plants should be carefully inspected to ensure that they are free from disease.

Perithecia may develop in fallen leaves and will continue to produce infective spores for as long as they remain in the orchid house. Don't sweep your old leaves under the carpet!! Keep your house clean!! Removing old leaves as soon as is practicable will reduce the source of inoculum. However, there remains the problem of what to do to control the infection in those plants that are already infected. Short of consigning the plant to the wheelie bin (which should be home to all highly susceptible plants), there is no real alternative but to use an effective fungicide program. Regular applications of mancozeb (which is a contact fungicide) will kill the fungal spores but will not kill the fungus that is already growing inside the plant tissue. To achieve that goal, a suitable systemic fungicide is required. Not all systemic fungicides will kill *Guignardia*. A readily available systemic that is reasonably effective and has very low mammalian toxicity is Triforine (rose spray). A more effective systemic is thiophanate-methyl, but this is not generally available from the usual supermarket outlets. Both types of fungicide must be used in a regular program if satisfactory control of the fungus is to be achieved.....the contact fungicide (to kill the spores and so stop new infections) and the systemic (to kill the fungus that is producing the spores). A combination of thiophanate-methyl and mancozeb is marketed under the trade name 'Zyban'. It is highly effective when used according to directions.

Remember, once the plant is infected, disease-free status must be achieved and then maintained so that all newly emerging leaves remain disease free. It may take several years to fully restore the health of your beloved plant. Sounds like a lot of effort? If so, remember how you introduced the disease in the first place. Most orchid collections are infected by introducing infected plants. Many infected plants turn up at orchid shows, either on display (where they act as a source of inoculum for other plants) or on sales benches (where they act as vehicles for the continued spread of the disease). And so the cycle continues. Think very carefully of the consequences before you sell or purchase an obviously infected plant. Be aware however that the infection may not be obvious for several weeks and that if infection does develop, be prepared to treat the infection. Soooo....when the fellow next door says he is in big trouble with Thai disease, don't jump to conclusions. Maybe he didn't acquire it at one of the Bangkok girlie bars. Maybe, just maybe, he was referring to that Vanda he acquired from you!!

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Reference:- Orchid Pests and Diseases. American Orchid Society, 2002 Revised Edition.