



FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES  
COMMISSIONER ADAM H. PUTNAM

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## PLANT INSPECTION ADVISORY

NO. 06-01-2015

**DATE:** June 1, 2015  
**TO:** Bureau of Plant & Apiary Inspectors and Supervisors  
**FROM:** Tim Schubert, Biological Administrator III, FDACS-DPI Plant Pathology Section  
**SUBJECT:** **Bamboo rust** caused by *Kweilingia divina*

In early December 2014, the California Department of Food and Agriculture (CDFA) detected a rust on the foliage of a single 5-gallon potted *Bambusa vulgaris* shipped from south Florida to a nursery in Pleasanton CA in Alameda Co. The nursery supplying the plant was Tropical Bamboo in Loxahatchee. The rust was identified as *Kweilingia divina* (Syd.) Buriticá [formerly *Dasturella divina* (Syd.) Mundk. & Khesw.], a new record for the state of Florida. Subsequent samples confirmed the identification using genetic sequencing here in the DPI Advanced Diagnostics Laboratory. To provide context, this same confirming sample was heavily infested with a quarantine pit scale insect, *Bambusaspis miliaris*.

Some bamboo authorities claim that there are over two dozen different rust pathogens in several genera known on bamboo. Until recently, only two were known in the US: *Puccinia phyllostachydis* (common bamboo rust) and *Puccinia melanocephala* (sugarcane brown rust, also infects some bamboos). The third to appear is this new species, similarly noticed first by plant pathologists at the CDFA in 2006 on shipments of bamboo from Hawaii and intercepted in Los Angeles Co. Once notified, Hawaii initiated surveys for the new rust, and detected it on four major islands in that state. This BOLO is intended to alert Florida growers to be on the lookout for further instances of this rust now present in our area.

Symptoms of bamboo rust consist of elongated tan flecks and larger lesions that show through the leaf blade (Figure 1). The flecks are surrounded by a chlorotic (yellow) halo, and can have a distance dark brown outline at the edge of the necrosis. Within the lesion, powdery, erumpent, yellow-orange to rust colored pustules form (the urediniosori) aligned lengthwise along the lesion and the leaf blade (Figure 2). Lesions can coalesce to form large necrotic patches on foliage.

The rust pathogen has the typical complicated life cycle of a macrocyclic rust pathogen. The alternate host *Catunaregam spinosa*, (mountain pomegranate in the Rubiaceae) is native to the tropics of Africa and Southeast Asia. It supports the spermatial and aecial stages that cause witches' brooms and distorted growth. The aeciospores are wind-disseminated to initiate the uredinial infections on bamboo, the primary host. The uredinial stage occurs all through the growing season on bamboo foliage, and appears as typical tan-brown rust pustules to the unaided eye (Figure 1). It is these spores that increase disease incidence on bamboo during the growing season, and can represent the only form of the pathogen necessary to persist from season to season. The telial stage is less common, and may not be present much of the time. Teliospores are darkly pigmented and sometimes form the same pustules that produced urediniospores. Basidiospores emerge from the ripe teliospores to start the rust life cycle anew on the alternate host.

The primary host range of *K. divina* among the bamboos is large. It has been reported from nine species in *Bambusa*, five in *Dendrocalamus*, two each in *Ochlandra* and *Thyrsostachys*, and a single species each in *Ischurochloa* and *Oxytenanthera*.

#### References:

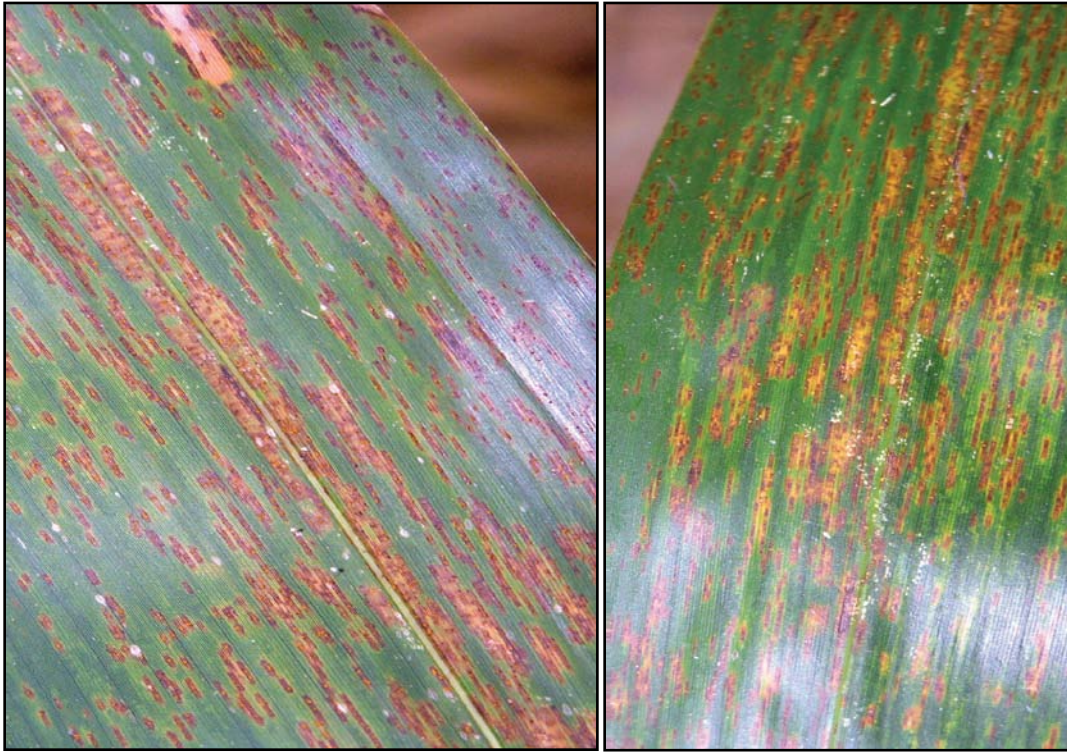
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**Figure 1.** Typical *Kweilingia divina* rust symptoms on *Bambusa vulgaris*. Photograph by Scot C. Nelson.



**Figure 2.** Upper (left) and lower (center) surface of a leaf of *Bambusa vulgaris* infected with *Kweilingia divina*. Photographs by Scot C. Nelson. Close-up view of pustules (urediniosori) at far right. Photograph by Matthew Goo.