

STEM BLEEDING DISEASE OF COCONUT PALM, *COCOS NUCIFERA* L.

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The stem bleeding disease of coconut palm has its origin in the Old World, having first been reported from Ceylon by Petch in 1906 (2), India by Sundararaman in 1922 (6), the Philippines by Lee in 1922 (2), Malaya by Sharples in 1923 (4), Adaman Islands by Mitra in 1929 (3), and Trinidad by Briton-Jones in 1940 (1). Disease occurrences in Florida include Reddington Beach in 1959, North Miami in 1966 and, most recently, Palm Beach in 1967. It is also reported to occur in the West Indies (Index of Plant Diseases, Agricultural Handbook No. 165, 1960). The fungus, *Endoconidiophora paradoxa* (Dade) Davidson, is associated with the stem bleeding disease of coconut palm. The fungus is reported to be a wound parasite entering the host through wounds or growth cracks on the stem (1, 2, 6). Stem injuries such as those inflicted by knives (1) and, in particular, those produced by steel climbing spikes when used to scale trees in cultural practices as shown in Figure 1A and B, are important portals of entry for the fungus. Among other possible causes associated with stem bleeding are the activity of termites (7) and various physiological factors such as heavy fertilization followed by drought, excessive rains followed by drought, fluctuating water tables, and poorly drained soils (5). *E. paradoxa* is also known to cause disease in sugarcane, pineapple, palmyra, and arecanut (2).

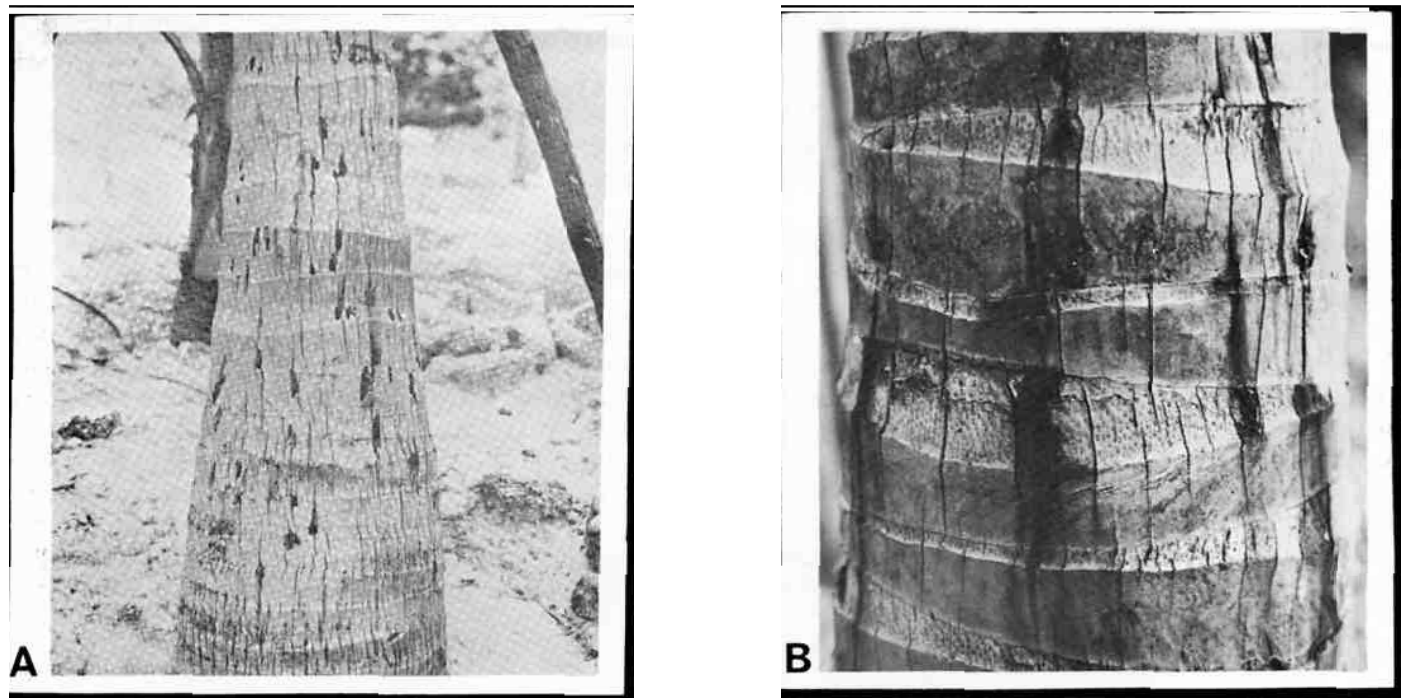


Fig. 1. The stem bleeding disease of coconut palm, A) showing growth cracks and spike wounds on stem, B) close-up of (A) showing bleeding from spike wounds.

SYMPTOMS. Stem bleeding is characterized by the exudation of a dark reddish-brown liquid from growth cracks and wounds on the stem trickling down for a distance of several inches to several feet. Beneath the bleeding lesions the tissue is yellow to brown and finally black in advanced stages, whereupon liquid exudate ceases to flow and turns black. Affected trees cease to bear nuts, the crown dwindles, and the tree finally dies (3). Young palms having soft stem tissue are more susceptible to infection than older palms. The necrotic breakdown progresses in both directions in the stem, moving very rapidly in young palms and producing a soft, watery, tan-colored rot, which yields to slight pressure when applied to the rind. Figure 2A is a cross-section of a diseased coconut stem with the dark surface area made up of black, moistened masses of fungus chlamydospores and indicating the site of entry of the fungus; the light-colored area exhibiting the grey, vigorously growing fungus. Figure 2B is an enlargement of the same area.

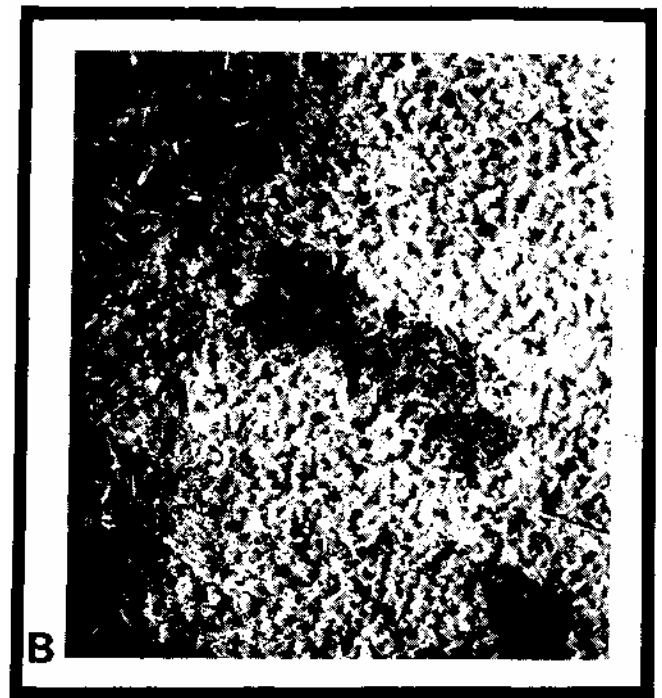
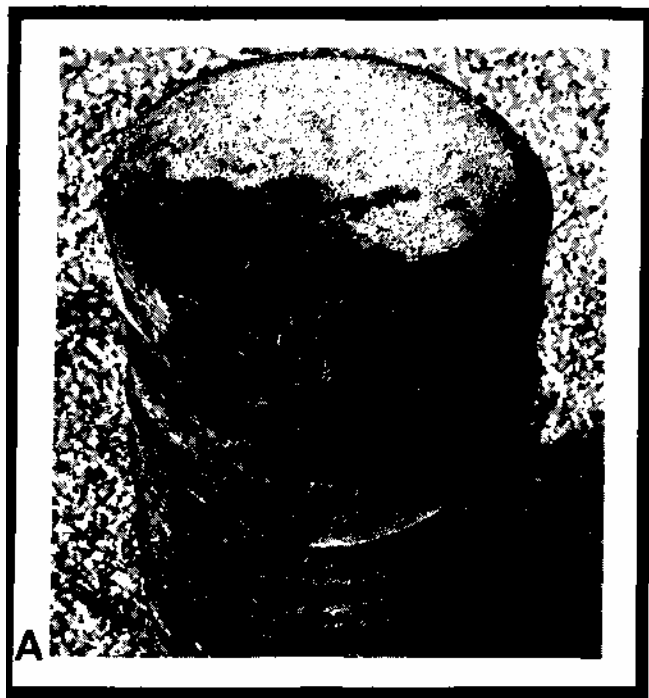


Fig. 2. The stem bleeding disease of coconut palm, A) cross-section view of infected coconut stem showing the wound site of entry and fungus development, B) close-up of (A) showing "dark masses of mature fungus spores and lighter area of the vigorously growing fungus on stem fibers.

CONTROL. One of the suggested recommendations for control of the stem bleeding disease is to completely excise the infected areas on the stem, followed by dressing with tar or Bordeaux paste (2). The use of steel climbing spikes should be avoided whenever possible and a ladder be used in their stead, in order to reduce the mechanical wounds which serve as the primary means of entry for the fungus. Moreover, where economically feasible, applications of a fungicide to the stems of coconut may provide adequate protection. In addition, if the use of steel climbing spikes persists, proper and thorough disinfection of the spikes with Lysol, Clorox, etc., should be accomplished before scaling a coconut tree. This would minimize introduction of the fungus into the stems via spike wounds. Reducing stem cracks can bring about, a reasonable degree of disease control by judicious attention to horticultural practices of avoiding extremes in moisture and fertilization which influence the quality and quantity of stem cracks of the coconut palm.

Literature Cited

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