

ADANSONIA DIGITATA (BAOBAB), A NEWLY DISCOVERED HOST  
FOR MELOIDOGYNE SP. AND ROTYLENCHULUS RENIFORMIS:  
AGRICULTURAL IMPLICATIONS

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ABSTRACT

Baobab, Adansonia digitata, was found to be a host of a root-knot nematode, Meloidogyne sp., and the reniform nematode, Rotylenchulus reniformis, in Senegal. The implications of baobab as an inoculum source of these nematodes in newly developed agricultural enterprises in semi-arid areas of Africa is discussed.

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In an experimental plot in Dakar, Senegal sweetpotatoes (Ipomoea batatas) recently were found that were infected with root-knot nematodes, Meloidogyne sp., and the reniform nematode, Rotylenchulus reniformis. This plot previously had been cropped twice with peanut (Arachis hypogaea), a nonhost to local isolates of Meloidogyne (1) and R. reniformis (Germani, personal communication). Because the sweetpotatoes had been planted as cuttings, an alternative source of infestation was sought.

Examination of the sweetpotato rhizosphere disclosed roots of another plant that was also infected with Meloidogyne. These roots were traced to an isolated baobab (Adansonia digitata) tree 12 meters from the plot. Staining of these roots revealed the presence of the reniform nematode. Perineal patterns of the root-knot nematodes were of the M. arenaria-javanica-incognita group. It seems logical that the infected baobab was the source of contamination of the plots.

Practical implications: Meloidogyne is considered to be "the most important nematode problem in tropical Africa" (2), and Rotylenchulus may prove "to be very important in agricultural production in tropical Africa" (2). The discovery that the perennial baobab (Fig. 1), which is found abundantly from Senegal to the Indian Ocean, is a host for both nematodes suggests that this tree may be an important reservoir for these parasites throughout its range in Africa. In many areas of semi-arid Africa, irrigation projects are being planned and developed to bring additional land into use and to increase agricultural production. Baobabs that occur in these areas are usually removed before fields are established for production. If the trees were infected, sufficient inoculum could be left in the soil to provide loci of infection for subsequently grown susceptible crops.



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FIGURE 1. A typical baobab tree in Senegal.

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In at least three instances in Senegal where baobabs (and other native vegetation) were removed before initiation of intensive vegetable production, Meloidogyne became a production problem after one to three cropping seasons. Although not proven, it seems likely that infected baobab trees were the source of these Meloidogyne infestations. Baobab and other native vegetation growing on "virgin" land in semi-arid regions of Africa should be examined before the land is developed for intensive crop production. If loci of infection are found, appropriate control measures should be taken before the intensive planting of susceptible crops.

Literature Cited

1. NETSCHER, C. 1975. Studies on the resistance of groundnut to Meloidogyne sp. in Senegal. Cah. ORSTOM, Ser. Biol. 10: 227-232.
  2. TAYLOR, D. P. 1976. Plant nematology problems in tropical Africa. Helminthol. Abstr., Ser. B 45: 269-284.
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