

Evaluation of neem as a surface protectant of yam (*Dioscorea rotundata* Poir) tubers

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Abstract

Yam is an important crop in West Africa which is gaining significance as an export crop. A major constraint against its production is postharvest losses, especially losses resulting from deterioration by fungi and other pathogens. Since there are public concerns about the harmful effects of pesticides, there is the need to use environmentally friendly means of controlling pests and pathogens. The efficacy of aqueous and ethanol extracts of neem seed was therefore tested alongside carbendazim, a conventional fungicide, on fungal isolates from rotten yam tubers. Plugs of mycelia from pure cultures of the various isolates were placed on Potato Dextrose Agar plates and treated with 2 ml of aqueous and ethanol extracts of neem seed and carbendazim. Fungal toxicity of the neem extracts was measured in terms of percentage colony inhibition. Carbendazim and aqueous neem seed extract were also applied to tubers of 'Laribako', 'Puna' and 'Nyumangli' cultivars before storage. Isolations were then made from rotten tubers during storage. Pathogenicity tests showed that *Aspergillus niger*, *A. flavus*, *Botryodiplodia theobromae*, *Rhizopus stolonifer* and *Fusarium* spp. were responsible for the rot in tubers from the market and storage barn. *A. niger* was the most frequent in both the market (37.9%) and the storage barn (43.7%) while *R. stolonifer* was the least with 4.6 and 18.7% in the market and the barn respectively. Generally carbendazim had the highest inhibition in all isolates followed by ethanol and aqueous extracts of neem seed and the control in that order. Since ethanol and aqueous extracts of neem seed also inhibited fungal growth to some extent, either of them and preferably the latter can be used as a pretreatment of yam tubers prior to storage.