REDUCTION OF WASTAGE IN STORED YAMS

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SUMMARY

A combination of treatment with thiabendazole and storage of treated tubers in polythene bags in cool storage appears to be a practical possibility for yam storage in Jamaica.

RESUME

Une combinaison de traitement au thiabendazole et de stockage des tubercules traités dans des sacs de polythène en stockage frais semble être une possibilité pratique de stockage de l'igname en Jamaïque.

RESUMEN

Un tratamiento combinado de thiabendazole y el almacenamiento de los tubérculos así tratados en bolsas de polietileno bajo almacenaje refrigerado, parece ser una posibilidad práctica para el almacenamiento de ñame en Jamaica.

INTRODUCTION

Yams (*Dioscorea* spp.) are a major staple in many tropical countries[7] and are also gaining importance as an export crop[3]. Storage, to extend periods of availability, is necessary but usually gives rise to high wastage. Weight losses arise from desiccation, respiration, necrosis caused by microorganisms[1,2,6,10,13], and parasitic nematodes[17]. Storage of yams below 12.5°C causes chilling injury[9] but high levels of decay can occur at 15°C.[4]. It was concluded[7] that cold storage alone cannot be used as a method of reducing losses in yams although treatment of tubers with benomyl or thiabendazole fungicides can reduce wastage in cool storage[14,15,18]. Curing undamaged yams before storage reduced weight losses and microbial infections[11,16]. Waxing, which has been used commercially to improve the market appearance of sweet potatoes, has not apparently been used for yams. Premature sprouting (lack of dormancy) is a major cause of wastage, particularly in *D. cayenensis* Lam. However, attempts at chemical control of sprouting in ambient storage of yams has not been successful[5,12] (an A.K. Thompson, unpublished data).

MATERIALS AND METHODS

Tubers were obtained from commercial harvests in the area of northern Manchester and southern Trelawny in Jamaica and were used for experiments one day after harvesting.

Experiment A used *D. cayenensis* and Experiments B and C used *D. rotundata* Poir. Tubers were cured for 25 hours in experiments A and B and 65 hours in experiment C at 36–40°C and 96–100% rh. or alternatively kept in ambient storage. Half the cured and uncured tubers were then stored at 12–13°C and 92–98% rh while the remainder were stored under ambient conditions (24–31°C and 56–92% rh).

Experiments D, E, G, H, I and J were on *D. rotundata* and experiment F was on *D. trifida* L. In each of these experiments half the tubers were wrapped individually in 150 gauge polyethylene bags secured with a rubber band while the remainder were left unwrapped. All storage was in 520 x 360 x 190 mm cardboard cartons under ambient conditions except in experiment H in which storage was at 12–13°C and 92–98% rh for 89 days, followed by ambient storage. All tubers in experiment H were cured for 24 h and then dipped for 3 minutes in 1000 ppm thiabendazole (2–(4–thiazolyl) benzimidazole) before storage. Tubers in experiment J were removed from storage at 11.7°C and 84% rh to ambient storage at weekly intervals. Tubers in experiments I, D and E were 'waxed' with the commerically available emulsion (Epolene E10 vegetable wax) diluted with water and air dried. In D and E waxing was combined factorially with polyethylene wrapping but no significant interaction was observed.

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