PROCEEDINGS

OF THE

CARIBBEAN FOOD CROPS SOCIETY

12th ANNUAL MEETING
JAMAICA

1974

VOLUME X11

STORAGE DISEASES OF CUSH-CUSH YAMS IN GUADELOUPE

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Cush-cush yam in Guadeloupe (F.W.I.) is consumed mainly at Christmas and not at all after April. The reason is found in the poor keeping qualities of the crop. The loss occurs by drying and by diseases and pests. Among them the most important are ones caused by Penicillium and mealy bugs. This paper presents some possibilities of control we could propose.

1. Importance of Penicillium rot

Fourteen samples of one hundred tubers each were observed during a month in natural conditions (temperature 23°C, relative humidity 60-100%). We noticed 2 to 37% of rotted tubers with an average of 10%.

On 78% of the rotted tubers rots were due to Penicillium oxalicum.

On 6%, rots were due to Fusarium oxysporum and F. solani.

We have isolated in these cases as contaminants, some bacteria and nematodes (genera Aphelenchoides and Aphelenchus).

This is a confirmation of the importance of Penicillium oxalicum as a rot factor in cush-cush storage. There is no significant differences in susceptibility towards P. oxalicum among the main varieties used at the INRA plant breeding station. That is to say: INRA 3, 6, 22, 23, 25, 32, 35, 40, IRAT-22, Indian St. Laurent Yam, Indian Yam, Red cush-cush. It is possible to control the decay with fungicides. TABLE I shows that benomyl less than 0.3g/l AM could protect cush-cush tubers quite well during storage.

2. Importance of Mealy Bugs

During storage the population of Planococcus citri is frequently observed. The first larval stages are difficult to detect, but the presence of adult females (pink-white rounded body, 2-3 mm large) is easily observed in the skin hollows; they multiply rapidly when the tubers germinate. The mealy bugs spread then very quickly from one tuber to the others. Their effect is clearly seen on seed-tubers, which are killed or weakened, and on consumption tubers, the commercial value of which is greatly reduced.

Control could be obtained from using an insecticide (like malathion) or keeping the tubers in a cool dark room (temperature about 18°C). This practice gives good results in reducing

the multiplication of the mealy bugs (Fig. 1)
the germination of the tuber (Fig. 2)
the loss in dry matter (Fig. 3)

In conclusion we could propose:

For seed tuber: 24 or 48 h after harvest, wash the tubers in water and dip them 10 minutes in 0.5g/l malathion and 0.1g/l benomyl.

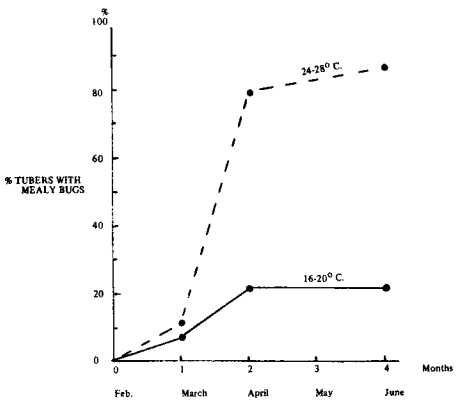

Figure 1 - Effect of storage temperature on the variation of the rate of tubers contaminated by Planococcus citri mealy bugs.

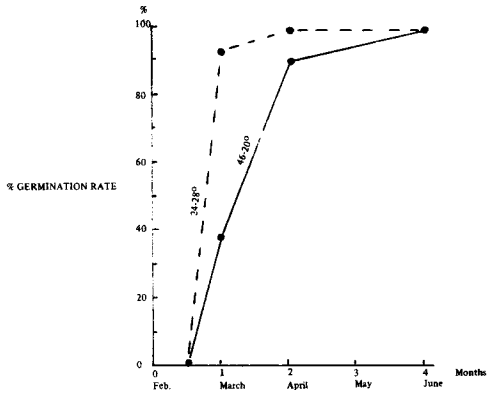

Figure 2 - Effect of storage temperature on the variation of the germination rate.

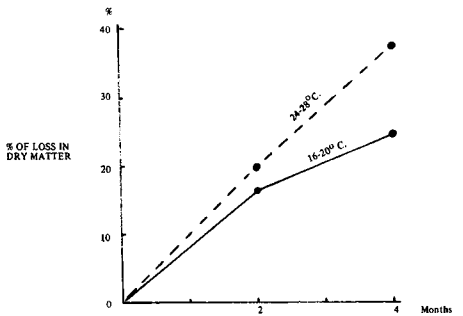

Figure 3 - Effect of storage temperature on the loss in dry matter (in % of the initial weight).

For tubers to be used as food: The day after harvest wash the tuber in water, dip them 10 minutes in 0.25 g/l thiabendazole and store at 18°C (R H : 60-80%).

ACKNOWLEDGMENTS

We thank Dr. Coursey (Tropical Products Institute, London) and Mr. Panis (Station de Zoologie et Lutte biologique INRA Antibes) for the specific determination of Penicillium oxalicum and Planococcus citri respectively.

TABLE 1. Effect of 10 minutes' dipping in fungicides, at different times after innoculation by P. oxalicum, on the number of rotted tubers after a month (10 tubers by observation).

fungicide		thiabendazole			benomyl		
concentration (g/l m.a)		0.1	0.3	1	0.1	0.3	1
delay between treatment and innoculation	1 day	1	0	0	0	0	0
	2 days	0	1	0	0	0	0
	3 days	4	3	1	0	0	0
	4 days	10	9	7	4	5	10
control		10			10		