

Mejoramiento y conservación

MEDIUM-TERM AND LONG-TERM *in vitro* CONSERVATION AND SAFE INTERNATIONAL EXCHANGE OF YAM (*Dioscorea* spp.) GERMPLASM

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Yam edible tubers feed million of peoples in the intertropical area, where they represent 12% of human feeding. However, as a vegetatively propagated crop, yam is seriously affected by an accumulation of pathogens. Establishing *in vitro* germplasm collection is a process that clean the plants from all diseases but viruses. It gives a good control on the preservation of the yam genetic resources and facilitate international exchanges of healthy plant material. Two kinds of *in vitro* germplasm preservation were considered: slow growth condition culture for midterm preservation, and cryopreservation using the encapsulation/dehydration technique for long-term preservation. Virus eradication was approached by meristem culture and chemo and thermotherapy. Production of virus-free plants was controlled by ELISA. We succeeded in the introduction and maintenance of 20 yam species, under slow growth conditions. Cryopreservation was applied successfully on two edible yam species, *Dioscorea alata* L. and *D. bulbifera* L. Virus-free plants were obtained by meristem culture in *D. cayenensis*-*D. rotundata* complex and *D. praehensilis*. Indexation allowed the detection of different virus (poty-, potex-, badna- and cucumovirus), where the most important potyvirus was YMV. Mid-term conservation of yam germplasm is used routinely, and from these conditions a direct acclimatization is possible. On the cryopreservation aspect, experiments are under way to apply the optimized protocol to genotypes more representative of the diversity, to insure a routinely use. More work can be conducted now on virus eradication, based on knowledge accumulated on potyvirus diversity, on several tests available for yam indexing (ELISA, rt/PCR, monoclonal antibodies) and on new sanitation techniques.

Malaurie Bernard, Trouslot Marie-France, Berthaud Julien,
Bousalem Mustapha, Pinel Agnès, Dubern Jean (1998)

Medium-term and long-term in vitro conservation and safe
international exchange of yam (*Dioscorea* spp.) germplasm

In: Encuentro latinoamericano de biotecnología vegetal:
resúmenes = Latin American meeting of plant biotechnology :
abstract

La Havane: FAO, 190

REDBIO 98 : Encuentro Latinoamericano de Biotecnología
Vegetal, 3., La Havane (CUB), 1998/06/1-5