

## ABSTRACT

### **Production of interploid hybrids and molecular marker heterozygosity determination using microsatellite markers in the greater yam, *D. alata* : importance for the genetic improvement of the greater yam.**

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A large number of interploid hybrids were developed for the first time by controlled hybridisation among *D. alata* genotypes with different ploidy levels (4x-8x). Four different tetraploid female parental lines and one octoploid male parental line were used.

Flow cytometry and microsatellite markers were used to verify the hexaploid nature of progenies. Some of the seeds produced were found to contain embryos but not albumen, and it was therefore necessary to obtain seedlings using embryo culture. Heterozygosity of the *Dioscorea alata* accessions of the CIRAD collection in Guadeloupe was determined using ten microsatellite markers. This collection includes 60 tetraploid accessions, seven hexaploids and 16 octoploids. Results show that homozygosity-heterozygosity depend on ploidy level. On the average, hexaploid accessions have a higher number of alleles per locus (average=2.8) than tetraploid accessions (average=1.8) which could explain their superior performance observed in the field in comparison to tetraploid varieties.

The development of interploid hybrids by crossing distant genotypes with different ploidy levels (4x-8x) appears promising for the genetic improvement of the greater yam, making it possible to maximise heterozygosity and heterosis. The exploitation of this way runs up against the existence, within genetic resource collections, of a low number of 8x clones that can be used as parental lines. The different possibilities that are being explored to create 8x clones will be presented (the doubling of chromosomal stock from 4x accessions, somatic embryogenesis, etc.).