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“Gestion des insectes ravageurs des cultures et vecteurs de maladies pour un environnement viable et une sécurité alimentaire en Afrique: Développements courants”

“Insect pest and vector management for sustainable environment and food security in Africa: Current developments”

Programme
Dioscorea alata is a polyploid species with several ploidy levels and its basic chromosome number has been considered by most authors to be $x = 10$. Standard chromosome counting and flow cytometry analysis were used to determine the chromosome number of 110 D. alata accessions of the CIRAD germplasm collection. The results revealed that 76% of accessions have $2n = 40$ chromosomes, 7% have $2n = 60$ chromosomes and 17% have $2n = 80$ chromosomes. Progenies were produced from $2n = 40$ types of D. alata and the segregation patterns of six microsatellite markers in four different progenies were analysed. The Bayesian method was used to test for diploid versus tetraploid (allo- and autotetraploid) modes of inheritance. The results provided the genetic evidence to establish the diploidy of plants with $2n = 40$ chromosomes and to support the hypothesis that plants with $2n = 40$, 60 and 80 chromosomes are diploids, triploids and tetraploids, respectively, and that the basic chromosome number of D. alata is $x = 20$. The findings obtained in the present study are significant for effective breeding programs, genetic diversity analysis and elucidation of the phylogeny and the species origin of D. alata.

Keywords: Dioscorea alata, polyploidy, microsatellite segregation, basic chromosome number