

Genetic homogeneity of vegetatively propagated *Clinacanthus nutans* (Acanthaceae)

Abstract

Clinacanthus nutans is a medicinal Asian plant often propagated by stem cuttings but little is known about the genetic relationships between existing accessions and the extent of homogeneity. In this study, we examined the genetic homogeneity in 12 *C. nutans* samples from Malaysia, Thailand and Vietnam reproduced by vegetative propagation from different regions between and within countries, and compared it to sexually propagated *Andrographis paniculata* (same family), related *Clinacanthus siamensis* (same family) and an out-group (different family) using restriction fragment length polymorphism (RFLP), random amplified polymorphic DNA (RAPD) and microsatellite markers. There was a high genetic similarity between *C. nutans* accessions from all countries, with identical genetic profiles even though they were geographically distant. *C. nutans* clustered closely with *C. siamensis* and was distant from *A. paniculata* and the out-group. Genetic similarity for *C. nutans* was almost double that of *A. paniculata*, but the combined clustering analysis revealed higher diversity in *C. nutans*. These results provide fundamental knowledge in future planting decisions and options, and also facilitate further germplasm conservation of *C. nutans* and other vegetatively propagated medicinal species.