Genetic Diversity in Species of Cyperus

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Found on all continents, nutsedge is a prolific weed burdening the lives of people around the world. The rapid growth and extreme difficulty of eradicating nutsedge is a result of its underground tuber system. However, these qualities of nutsedge are not reciprocated throughout the genus, indicating a possible gene or protein associated with tuber production. This experiment was conducted to investigate the genetic diversity among species of Cyperus through plastid DNA and RAPD primer analysis. Six species of Cyperus: rotundus, gracilis, brevifolius, alternifolius, polystachyos, and javanicus were compared to identify a common difference between species with and without tubers. The DNA of each sample was amplified through polymerase chain reaction (PCR) using five plastid DNA primers: rpoC1, nad5, rbcLa, MatK KIM, and MatK 390. Valid PCR products were sequenced, and the analysis of single nucleotide polymorphisms revealed a missense mutation at 83bp, distinguishing between species with tubers and those without. The species were also compared with five RAPD primers, A05, B014, B015, OPF 03, and OPF 13, though further research is necessary to confirm results.

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