Cross-species amplification of microsatellite loci developed for *Digitaria exilis* Stapf in related *Digitaria* species

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ABSTRACT

Objectives: *Digitaria exilis* Stapf (white fonio) is a staple crop in West Africa, mainly consumed during food shortage and highly associated to cultural events. The aim of this study was to test the transferability of microsatellite loci developed for *D. exilis* to other species of the genus *Digitaria* in order to further investigate the diversity of species for which there is little genomic resources available.

Methodology and Results: Eight (8) microsatellite loci on 119 accessions from 39 *Digitaria* species were tested. With an average amplification percentage of 62.8% ranging from 25% to 100 %, these SSR markers are transferable to other species of the genus *Digitaria*. The transferability was higher for *D. argyrothrica*, *D. fuscescens*, *D. longiflora*, *D. milanjiana* and *D. ternata*. In some species such as *D. abyssinica*, *D. fuscata*, *D. pennata*, *D. pseudodiagonalis* and *D. tisserantii*, the very low percentage of cross-amplification confirmed their distance from *D. exilis*. *D. longiflora*, thought as the most related wild species to *D. exilis*, exhibited 100% level of transferable polymorphic loci.

Conclusion and application of findings: This set of markers will be useful for breeding and studying relationships between *Digitaria* species.

Keywords: Cross-species amplification, *Digitaria*, genetic diversity, microsatellite loci.