

Transferability of microsatellite markers (SSR) from *Setaria italica* to *Setaria sphacelata* (Poaceae)

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ABSTRACT

Development of microsatellite markers is a relatively time-consuming and expensive process for non-model organisms, such as *Setaria sphacelata* (Poaceae). Thus, transferring developed markers from one species to another closely related, is a very helpful alternative, in particular for non-model organisms. *Setaria sphacelata* (Poaceae), is a promising forage species with different ploidal levels, being a resilient cereal crop, with good yields in dry and marginal land. The species is closely related to *Setaria italica*, a model plant with sequenced genome. Although the *Setaria* species has a valuable scientific and economic importance, the genomic information available is still poorly explored. The aim of this study was to evaluate the transferability of microsatellites primers early developed for *S. italica* to *S. sphacelata*. Based on the literature, a set of 39 microsatellite primers were selected. To evaluate the primers, we selected a set of individuals representing all ploidal levels described so far. Four diploids, two pentaploids, eight tetraploids and two hexaploids were investigated. The DNA was extracted using CTAB method, and the PCR products were analyzed in 5% acrylamide gel. Among the 39 primers, 25 showed satisfactory amplification in at least one population of different ploidal levels, which represents 64% of transferability. The number of alleles ranged between 1 and 7, with sizes varying between 125 and 400 bp. The primers were polymorphic, being validated from cross-amplification in *S. sphacelata*. The results will be very useful on investigation about the genetic diversity and breeding strategies of *S. sphacelata*.

KEYWORDS: Setaria; microsatellites; forage plants

ACKNOWLEDGMENTS: Cnpq, CAPES, Fapemig, Embrapa Gado de Leite.