

MOLECULAR CHARACTERIZATION OF DURUM WHEAT “S. AGATA” BY fAFLP

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Genotype identification is a fundamental requirement for traceability in the cereal food chain. Amplified fragment length polymorphism in fluorescence (fAFLP) has become a popular tool for quickly assessing the genetic background of selected lines or populations. This technique, by performing a reproducible fingerprinting profiles, allows to add an exact evaluation of amplicons size to intraspecific resolution and to high polymorphism determined by AFLP markers.

In this research a simplified fAFLP method was developed for identification and molecular characterization of a new variety of durum wheat, namely *Sant'Agata*, recently selected by the Catania Section of C.R.A., by fAFLP. *Sant'Agata* shows good agronomic and qualitative characteristics, like optimal growth in Mediterranean environment, good vocation to make bread and/or make pasta, as demonstrated by grain storage proteins characterization, carried out by identifying HMW and LMW subunits. In SDS-PAGE *Sant'Agata* shows HMW glutenin subunits pair “7+8” and LMW glutenin subunits type “2”, both related with good gluten quality.

A selective amplification was performed on fifteen genotypes booked in National Register of Variety, including *Sant'Agata*, with sixty-four fluorescence labelled primers combinations in order to determine polymorphic profiles. The amplified fragments were detected on capillary gel electrophoresis using the automated DNA sequencer Beckman & Coulter CEQ 8000 with the analysis fragment option. Four different primer combinations produced most polymorphic bands. Selective primers generated a total of 2142 AFLP fragments, including 826 (38.6%) polymorphic on 15 analyzed variety. These primer combinations were selected to identify fingerprinting profile of *Sant'Agata* yielding a total of 154 AFLP fragments, including 41 (26.6%) polymorphic. The best *Sant'Agata* profile was performed with primer combination EcoRI+AAG* MseI+CTT, obtaining a 66% of polymorphic peaks. The achieved results confirm the usefulness of the proposed modification of the AFLP method for diversity studies and identification of durum wheat cultivars. This technique, could be used by the breeders for protecting the property of the cultivars constituted and by other actors of the cereal sector for the traceability of monovariety products.