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Genetic approaches in preservation of ancient species: study of genetic variability of *Zelkova sicula* Di Pasquale, Garfi et Quézel through markers AFLP

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Abstract

Zelkova sicula belongs to a genus that dates back to the Tertiary era: it survived in south-east Sicily after the Quaternary glaciation. To date only two populations of *Z. sicula* are known, and the species is listed as Critically Endangered by the IUCN Red List. No sexual reproductive success has been shown and the two populations may be constituted by clonal specimens.

The aim of this thesis was to verify the genetic diversity of the two populations. Leaves from 524 specimens have been collected and the genetic variability analysed by: 1) Southern Blot Hybridization; 2) PCR - Polymerase Chain Reaction; 3) Amplified Fragment Length Polymorphism; 4) Single Nucleotide Polymorphism; 5) Simple Sequence Repeat.

Preliminary results show that there is an unexpected genetic variability both within and between the two populations. Since this analysis has been performed on bulks of leaves, further studies are necessary to identify the specimens which show genetic variability. Once the scenario of the diversity is clarified it may be integrated with conservation projects based on propagation and cultivation, both *in situ* and *ex situ*, with the aim to maintain as much as possible genetic diversity.