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TITLE

In-situ risks-threats profiling, ex-situ conservation actions and new molecular markers for the threatened endemic tulips of Greece

(Project ID: 14875)

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ABSTRACT

From a horticultural point of view, tulips are worldwide famous ornamental crops that are clonally propagated; however, in Greece there are 15 wild-growing Greek tulip species among which six are local Greek endemics threatened with extinction, and protected by the Greek Presidential Decree 67/1981. This research will focus on the Greek endemic members of genus Tulipa assessed nationally as Critically Endangered (T. bakeri, T. doerfleri), Endangered (T. cretica, T. hageri, T. orphanidea) or Vulnerable (T. goulimyi) as well as the Vulnerable Balkan-Anatolian subendemic T. undulatifolia. The original habitats of wild-growing Greek endemic tulips will be explored aiming to collect bulbs and mature seeds for their long-term ex-situ conservation at the Institute of Plant Breeding and Genetic Resources, Hellenic Agricultural Organization Demeter. For the targeted tulip species, species-specific diagnosis of risks-threats will be performed, photographic documentation of their flowers, leaves, bulbs, seeds and wild habitats as well as determination of their flowering and fruiting periods. Furthermore, a new molecular barcoding system will be developed and applied to the above-mentioned threatened Greek endemic tulips based on recent released genomic data. Alignment of these complete chloroplast genomes will identify the variable DNA regions that will be used to develop species-specific oligonucleotide primers for Tulipa taxa detection by PCR, as new molecular barcoding tool. To obtain a snapshot of the genetic diversity of the targeted tulips, we will collect plant materials for ex-situ conservation and ecological data across their ranges (genetic data from 15 localities) within a year (at least 45 days of fieldwork). The data generated will facilitate future restoration of susceptible or declined wild-growing populations and may allow the sustainable utilization of the focal Greek tulips.