



titre:

**Chemical and genetic diversity of two
Mediterranean subspecies of *Teucrium polium* L.**

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Source :

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Abstract :

Chemical and genetic diversity of *Teucrium polium* L. subsp. *polium* from western Algeria and *T. polium* L. subsp. *capitatum* from Corsica were investigated. Diversity within and among the two populations of subspecies was assessed according to the chemical composition of their essential oils and the genetic diversity. Chemical analysis was performed using a combination of capillary GC-RI and GC/MS after fractionation using column chromatography. Genetic structures were mapped using three polymorphic genetic markers: two chloroplast markers (RPL32-TRNL and TRNL-F) and ribosomal nuclear markers (ITS region). The statistical analysis showed that both subspecies were clearly distinguished by these chemical and genetic markers. The oil chemical compositions differed qualitatively and quantitatively between the subspecies. Both collective oils were dominated by hydrocarbon compounds however the Algerian sample oils exhibited higher amounts of hydrocarbon sesquiterpenes than those of Corsica (31.2 g/100 g vs. 4.4 g/100 g) while the latter displayed higher amounts of hydrocarbon monoterpenes than the first (59.3 g/100 g vs. 34.3 g/100 g). Neighbor-joining, Maximum likelihood and Bayesian trees constructed from chloroplast markers and nuclear ITS region sequences showed the existence of two groups associated with taxonomic and chemical characteristics. The study indicated that variation in the essential oil composition within subspecies depends on genetic background. The samples of subsp. *capitatum* from Corsica are a homogeneous group, in contrast to samples of subsp. *polium* from Algeria which were clustered in two groups. Chemical and genetic diversity of Algerian populations could be explained by geographical isolation of the populations. In addition, the morphological polymorphism observed throughout the colour of flowers could be explained by environmental parameters as well as the soil pH.