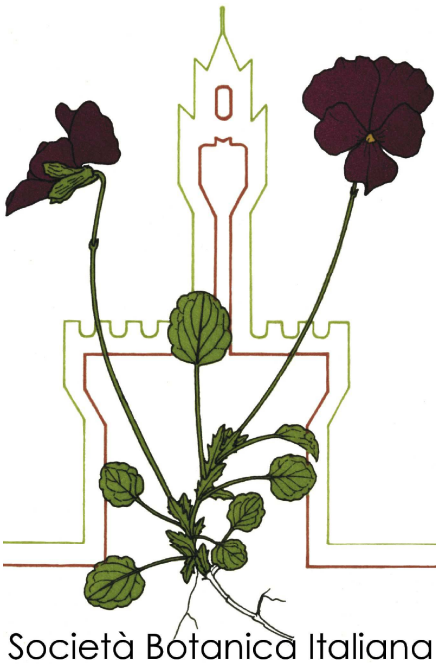

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BOOK OF ABSTRACT

KEYNOTE LECTURES, COMMUNICATIONS, POSTERS

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4.4 = CHEMODIVERSITY OF THE ESSENTIAL OIL FROM LEAVES OF *ABIES NEBRODENSIS* (LOJAC.) MATTEI

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Abies nebrodensis (Lojac.) Mattei is the most representative case of the Sicilian forest flora. It is an endemic relict species, at risk of extinction, and its natural population consists of thirty individuals distributed discontinuously in a small area of the territory of Polizzi Generosa, inside Madonie Natural Park (Sicily).
Besides to the small number of individuals, the risk of extinction is also due to the reduced number of plants able to produce fertile cones (1).
From the morphological point of view, the individuals of *A. nebrodensis*, according to several authors (2, 3, 4), share many features with three other Mediterranean species: *A. alba* Miller, *A. cephalonica* Loudon and *A. numidica* de Lannoy ex Carrière.
Recently Parducci & al. (5) used microsatellite markers of chloroplast DNA and isozymes (6) to investigate the genetic structure of populations of *A. alba*, *A. cephalonica*, *A. nebrodensis* and *A. numidica*. By the comparison of chloroplast haplotypes, these authors have verified that *A. nebrodensis* differs from the other three species.
As activities of the project "Preservation of *Abies nebrodensis* and restore of Geraci Siculo peatlands", the chemical composition of essential oils, obtained from leaves of Madonie fir, was compared with the ones of essential oils derived from Eurasian species studied up to now [*A. alba*, *A. borisii regis* Mattfeld, *A. bornmulleriana* Mattfeld, *A. cephalonica*, *A. cilicica* subsp. *cilicica* (Antoine & Kotschy) Carrière, *A. cilicica* subsp. *isaurica* Coode & Cullen, *A. equi-trojani* (Asch. & Sint. ex Boiss.) Coode & Cullen, *A. nordmanniana* (Steven) Spach, *A. numidica*, *A. sibirica* Ledeb] in order to obtain more information on the specificity of *A. nebrodensis* respect to these other taxa of the *Abies* genus.
The analysis shows that the oil of *A. nebrodensis* is almost completely (99.5%) constituted of nine compounds mainly monoterpene hydrocarbons, the most abundant being the β-pinene (48.8%), the α-pinene (17.5 %) and the camphene (12.7%).
The peculiar features of the *A. nebrodensis* oil, compared to the ones obtained from other species, are both the absence of limonene always present in high concentrations in the other taxa, that the high content of β-pinene, the highest one of the species compared.
The results of this study provide further contribution to the diversity of *A. nebrodensis* respect to other congener taxa, also morphologically similar.

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