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Poster Communication Abstract – PH.12

ISOLATION AND CHARACTERIZATION OF DITERPENE SYNTHASE GENES AND IDENTIFICATION OF DITERPENOIDS IN *PINUS NIGRA* SUBSP. *LARICIO* IN CALABRIA

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Terpenoids, also referred to as terpenes or isoprenoids, make up the biggest and most diversified class of chemical substances discovered in plants, encompassing over 40,000 individual compounds. They are biosynthesized by a large family of diverse terpene synthases that are the major determinants of the diversity of terpenoid carbon skeleton. Plants employ terpenoid metabolites for a variety of basic functions in growth and development but use the majority of terpenoids for more specialized chemical interactions and protection in the abiotic and biotic environment. In conifers, the production of terpenoids, either as oleoresin or emitted as volatile compounds, plays an important role in chemical defense. Due to their functional diversification and versatility, effort is being made in such species to decode the complex metabolic and molecular regulatory networks in terpenoid biosynthesis. Among conifers, a so far neglected model species is *Pinus nigra* subsp. *laricio* (Poiret) Maire, the Calabrian pine, one of the six subspecies of black pine (*Pinus nigra* J.F. Arnold). In Calabria, where it is considered an endemic species, it grows on the Sila and the Aspromonte mountains, representing an essential element of the forest landscape and playing an important role not only in soil conservation and watershed protection, but also in the local forest economy. In the framework of a PhD research project, we aimed at the isolation and characterizations of diterpene synthase genes and the identification of diterpene metabolites, that are the major component of resin content. This preliminary work will be necessary to conduct the matching among diterpenoids from GC-MS and the expression analysis of DTPS genes involved in Calabrian pine samplings subjected to the infestation brought about by the Pine Processionary Moth under semi-controlled conditions, to understand if and how their synthesis is regulated by infestation dynamics.