

CHARACTERIZATION OF THE VOLATILE FRACTION EMITTED BY PHLOEMS OF FOUR PINUS SPECIES BY SOLID-PHASE MICROEXTRACTION AND GAS CHROMATOGRAPHY–MASS SPECTROMETRY

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Pine forests constitute some of the most important renewable resources supplying timber, paper and chemical industries, among other functions. Characterization of the volatiles emitted by different *Pinus* species has proven to be an important tool to decode the process of host tree selection by herbivore insects, some of which cause serious economic damage to pines. Variations in the relative composition of the bouquet of semiochemicals are responsible for the outcome of different biological processes, such as mate finding, egg-laying site recognition and host selection.

The volatiles present in phloem samples of four pine species, *P. halepensis*, *P. sylvestris*, *P. pinaster* and *P. pinea*, were identified and characterized with the aim of finding possible host-plant attractants for native pests, such as the bark beetle *Tomicus piniperda*.

The volatile compounds emitted by phloem samples of pines were extracted by headspace solid phase micro extraction, using a 2 cm 50/30 mm divinylbenzene/carboxen/polydimethylsiloxane table flex solid-phase microextraction fiber and its contents analyzed by high-resolution gas chromatography, using flame ionization and a non polar and chiral column phases. The components of the volatile fraction emitted by the phloem samples were identified by mass spectrometry using time-of-flight and quadrupole mass analyzers. The estimated relative composition was used to perform a discriminate analysis among pine species, by means of cluster and principal component analysis.

It can be concluded that it is possible to discriminate pine species based on the monoterpenes emissions of phloem samples.