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Volatile composition of three species of wild mushrooms from Trás-os-Montes region using HS-SPME and GC/IT-MS

Liliana Nogueira,^a Ricardo Malheiro,^a Paula Guedes de Pinho,^b Paula Baptista^a

^aCIMO/School of Agriculture, Polytechnic Institute of Bragança, Campus Sta Apolónia, Apartado 1172, 5301-854 Bragança, Portugal. pbaptista@ipb.pt

^bREQUIMTE/Serviço de Toxicologia, Faculdade de Farmácia da Universidade do Porto, Rua Aníbal Cunha 164, 4050-047 Porto, Portugal.

Trás-os-Montes region is considered one of the richest regions of Portugal concerning the existence of wild mushrooms. In the present work, was studied the volatile profile of three species of wild mushrooms, *Hebeloma crustuliniforme*, *Clitocybe odora* and *Tricholoma fracticum*. These species have different flavours, namely radish-, anise-like odor, and not distinctive or slightly mealy odor, respectively. The volatile fractions were determined in fresh mushrooms by headspace solid-phase microextraction (HS-SPME) combined with gas-chromatography/ion trap-mass spectrometry (GC/IT-MS).

Several volatile compounds were identified, belonging to different chemical classes. The three studied mushroom species reported different volatile profiles as presented in Figure 1. Meanwhile these species are mainly composed by alcohols and aldehydes, and in minor content by sesquiterpenes, terpenic compounds, esters, ketones and other chemical classes. 3-Octanol and 1-octanol were identified in the species contributing to their flavour. *p*-Anisaldehyde was only identified in *Clitocybe odora* and was the main volatile compound identified in this specie. It contributes with the characteristic anise smell of this mushroom, and could be also used as a chemical authenticity marker. Linalool was present in the three species in considerable amounts contributing with floral scents.

Overall the volatile profile of the three species contributes with characteristic fragrances, which allow recognizing each one of them.

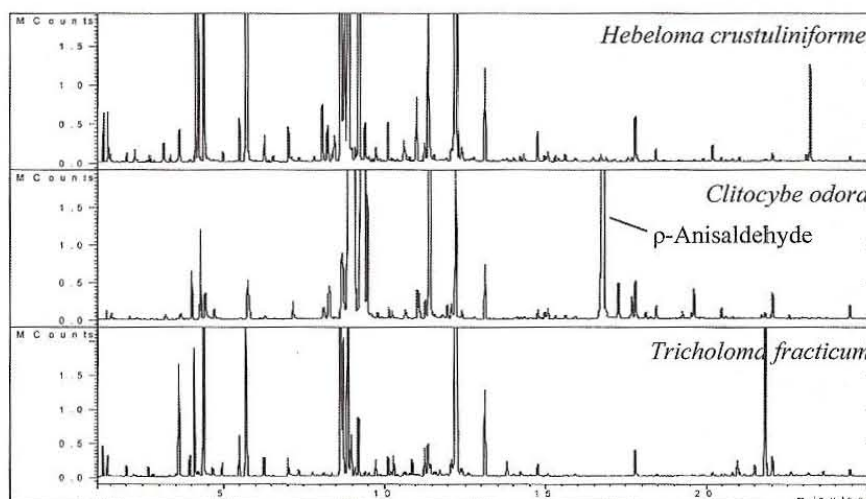


Figure 1. Chromatographic profile of the three species of wild mushrooms.

Keywords: Volatile profile; HS-SPME GC/IT-MS; *Hebeloma crustuliniforme*; *Clitocybe odora*; *Tricholoma fracticum*.