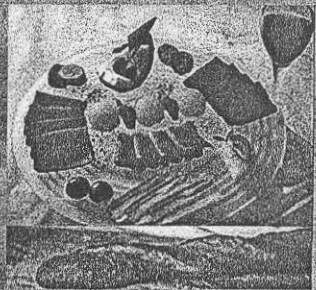
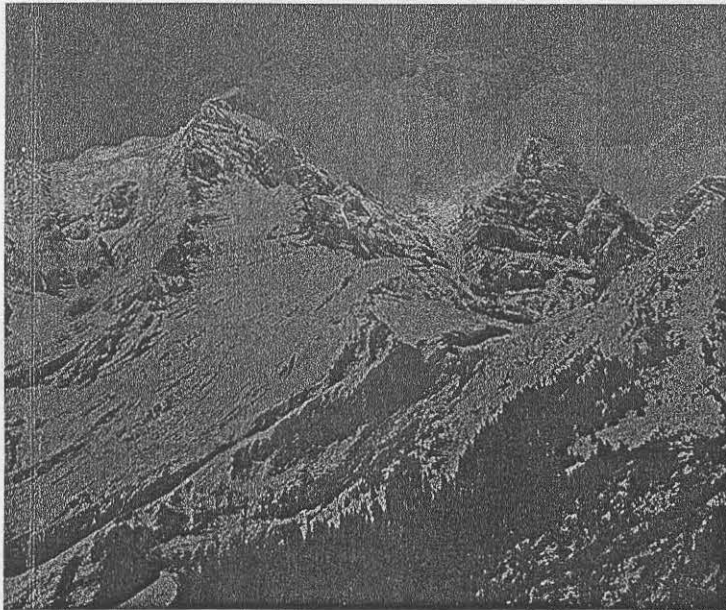


XII WEURMAN FLAVOUR RESEARCH SYMPOSIUM



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**AROMA COMPOUNDS IN ELEVEN EDIBLE MUSHROOM SPECIES:
RELATIONSHIP BETWEEN VOLATILE PROFILE AND SENSORIAL
CHARACTERISTICS**

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Wild edible mushrooms are consumed a lot in many countries, being cooked or eaten in salads. Their culinary and commercial value is mainly due to their organoleptic properties, namely aroma and flavour. In addition, the aroma is very characteristic for each mushroom species, which determines the distinction between them (1, 2). Despite the high consumption of mushrooms, little work is available concerning their volatile composition. Trás-os-Montes region (north-eastern Portugal) is known for the variety of its soils and diversity of climate conditions. This variability assumes an important role in mushroom production, which is why this region is recognised as one of the richest regions in wild edible species. In this work eleven wild edible mushrooms collected in this region were studied: *Suillus bellini*, *Suillus luteus*, *Suillus granulatus*, *Tricholomopsis rutilans*, *Hygrophorus agathosmus*, *Amanita rubescens*, *Russula cyanoxantha*, *Boletus edulis*, *Tricholoma equestre*, *Fistulina hepatica* and *Cantharellus cibarius*. With the exception of *B. edulis*, *F. hepatica*, *C. cibarius* and *S. luteus*, there is no knowledge of volatile characterisation of these species.

The volatile and semi-volatile constituents were determined by headspace solid-phase microextraction (HS-SPME) and by liquid extraction combined with gas chromatography-mass spectrometry (GC-MSMS) (3). A total of 49 volatiles and 17 semi-volatile components were identified. Simultaneously, using the descriptive analysis (4) of these mushroom species were performed by a panel and six descriptors were selected: "mushroom-like", "straw", "floral", "honey-like", "hay-herb" and "nutty". The multivariate analysis (principal component analysis and agglomerative hierarchic cluster analysis) of sensorial and chemical data revealed a correlation between sensory descriptors and volatiles. The studied mushroom species can be divided in three groups: one rich in C8 derivatives, like 3-octanol, 1-octen-3-ol, *trans*-2-octen-1-ol, 3-octanone and 1-octen-3-one; another with high amounts of norisoprenoids, such as 6-methyl-5-hepten-2-one, 3,7,11-trimethyl-1,6,10-dodecatrien-3-ol, 6,10-dimethyl-5,9-undecadien-2-one, (*5E,9E*)-6,10,14-trimethyl-5,9,13-pentadecatrien-2-one, terpenic volatile compounds (linalool, terpineol, limonene, α -pinene, menthol, \square -Pinene, camphene, 1,4-cineole, eucalyptol, *o*-cymene) and phenylacetaldehyde; and a third one rich in methional. The presence and contents of these compounds gives a considerable contribution to their sensory characteristics.

References:

- (1) Cuppet, S. L.; Parhurs, A. M.; Chung, W.; Bullerman, L. B. (1998). Factors affecting sensory attributes of Oyster mushrooms. *Journal of Food Qualit.*, **21**, 383-395.
- (2) Cronin, D. A.; Wada, S. Characterization of some mushroom volatiles. (1971). *J. of Science Food Agr.*, **22**, 477-479.
- (3) Silva Ferreira, A. C., Guedes de Pinho, P. (2003). Analytical method for the determination of some aroma compounds on white wines by Solid Phase Microextraction and gas chromatography. *J. of Food Science.*, **68**, 2817-2820.
- (4) AFNOR NFV09-021. Recueil de normes françaises, contrôle de la qualité des produits alimentaires, analyse sensorielle (1991). AFNOR, IBSN2-12-190843-9 (4^a edition).