

Effect of Clarifying Agents on the Volatile Composition of Mead

Leticia M. Estevinho^{1,2*}, Ananias Pascoal^{1,2}, J.M. Oliveira³, A.P. Pereira^{1,2}, Xesus Féas⁴ and Ofelia Anjos^{5,6}

¹Escola Superior Agraria, Instituto Politécnico de Bragança, Portugal

²Centro de Investigação de Montanha, Escola Superior Agraria, Instituto Politécnico de Bragança, Portugal

³Centro de Engenharia Biológica, Universidade do Minho, Portugal

⁴Academia das Ciências Veterinárias da Galiza, Edifício EGAP, Espanha

⁵Instituto Politécnico de Castelo Branco, Portugal

⁶Centro de Estudos Florestais, Instituto de Agronomia, Universidade Lisboa, Portugal

Mead is an ancient alcoholic beverage containing between 8% and 18% alcohol by volume. It is obtained by fermentation of honey-wort though a complex process demanding both long-term fermentation and maturation. In wine production different procedures are applied for organoleptic properties' stabilization and improvement, among which clarification. However, studies regarding those procedures in the context of mead fermentation are practically non-existent.

This study aimed to assess the effect of several clarifying agents (i. casein, ii. gelatin, iii. silica, iv. bentonite, v. tannins and vi. bentonite + gelatine + egg yolk) on the volatile composition of mead. The volatile compounds were determined by gas chromatography fitted with a flame ionisation detector (FID) and by gas chromatography-mass spectrometry (GC-MS).

Thirty-six volatile compounds were identified, among which 42.50% belong to the group of alcohols, 40.40% were carbonyl compounds, 14.40% were acetates and 1.8% were esters. Volatile compounds' concentration differed according to the concentration and type of fining agent used. Significant differences ($p < 0.05$) were found in ten volatile compounds independently of the type of treatment used. Highest volatile compounds' concentration, mainly esters, lactones, terpenes and norisopenoids, were observed in meads clarified with silica; the lowest values were obtained for samples in which tanines were used. From the identified compounds, eleven had major impact on meads' aroma, with OAV>1.

These results contribute to select the fining agent to be used in mead fermentation and, to a later extent, to improve the sensorial characteristics of this beverage.

Biography:

Leticia M. Estevinho received the Zootechnical Engineering degree in 1985, the MS Degree in Biotechnology in 1989 and the PhD Degree in Science in 1995. In 2009 passed with merit the proofs of "Agregação". Leticia M. Estevinho published more than 100 articles in indexed international journals, wrote several book chapters and presented more 160 oral and written communications. Leticia Estevinho is the Head of the Microbiology Laboratory of Escola Superior Agraria de Bragança since 1986 and has been the principal investigator of more than 30 financed research projects.