

Impact of fining agents on the volatile composition of sparkling mead



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Abstract

Sparkling mead is obtained by secondary fermentation of the mead involving the addition of starter yeast culture, sucrose, nutrients and fining agents. The aim of this study was to evaluate the effect of different fining agents (tannins vs combined fining agents) on the volatile composition of sparkling mead. Sparkling mead was produced from a base mead using a commercial yeast strain (*Saccharomyces bayanus*) and the volatile compounds were determined by gas chromatography–flame ionisation detection and gas chromatography–mass spectrometry. Thirty-six volatile compounds were quantified and the major groups were alcohols (73.2%), acetates (19.1%), carbonyl compounds (5.5%) and ethyl esters (1.2%), represented by 3-methyl-1-butanol, ethyl acetate, acetaldehyde and monoethyl succinate, respectively. The remaining compounds were present at <1%. Eleven volatile compounds exhibited odour activity values >1, with ethyl octanoate and ethyl hexanoate contributing to the aroma of sparkling mead, with fruity, strawberry and sweet notes. The combined fining agents caused a marked decrease in the concentration of volatile compounds compared with tannins. In general, 3-ethoxy-1-propanol, ethyl lactate, ethyl octanoate, diethyl succinate, diethyl malate, monoethyl succinate, 2-methylpropanoic acid, hexanoic acid, octanoic acid, acetaldehyde, acetoin, furfural, benzaldehyde, 5-hydroxymethylfurfural, trans-furan linalool oxide, cis-furan linalool oxide and 4-oxo-isophorone decreased in concentration. Conversely, 1-propanol and 2-methylpropanoic acid (tannins) and ethyl butyrate (combined fining agents) increased in concentration. The remaining volatile compounds were not affected. Significant differences ($p < 0.05$) were found for 19 volatile compounds independently of the type of fining agents used. © 2018 The Institute of Brewing & Distilling

Keywords

mead; sparkling mead; fining agents; volatile compounds; odour activity value