

CHARACTERIZATION OF CIDER FERMENTATION IN FRESH APPLE JUICE AND APPLE JUICE CONCENTRATE

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The purpose of this work was to examine cider fermentation conducted with various yeast strains in two different environments – fresh apple juice and apple juice concentrate. The impact of the fermentation medium was observed in terms of fermentation kinetics – sugar and nitrogen assimilation, ethanol and glycerol formation, malic acid assimilation – and sensory properties of the final product.

Fresh juice made from ‘Cox’s Orange Pippin’ cultivar apples and apple juice concentrate commercially available to cider producers were fermented using a selection of yeasts of a different genus (one brewing strain and five wine strains).

In terms of fermentation kinetics significant differences between the two juice matrices were not observed. Thus, above-mentioned indicators do not seem to be dependent on the fermentation matrix used but are rather a characteristic of the yeast strains themselves. However, the consumption of malic acid by yeasts was higher in the fresh apple juice where malic acid concentration was higher. In case of all yeast strains used, a decrease in malic acid content was observed during the fermentation process. From sensory perspective the “fruitiness”, both in odour and in taste, was the most important parameter distinguishing yeasts and their impact on the sensory profile of ciders. However, all samples made with fresh apple juice had an unpleasantly overwhelming off-flavor with descriptions as “animal”, “sweaty”, “musty”, “yeasty” and “sulphur”. Thus, according to the results of this study, the use of either fresh apple juice or apple juice concentrate in cider fermentation significantly affects the intensity of malate assimilation and sensory properties of the final product.



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