

Schizosaccharomyces pombe, Saccharomyces cerevisiae Yeasts and Acetic Acid Bacteria in Alcoholic and Acetous Fermentations: Effect on Phenolic Acids of Kei-Apple (*Dovyalis caffra* L.) Vinegar

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Abstract : *Dovyalis caffra* is a tree found on the African continent. Limited information exists on the effect of acetous fermentation on the phytochemicals of Kei-apple fruit. The phytochemical content of vinegars is derived from compounds present in the fruit the vinegar is made of. Kei-apple fruit juice was co-inoculated with *Schizosaccharomyces pombe* and *Saccharomyces cerevisiae* to induce alcoholic fermentation (AF). Acetous fermentation followed AF, using an acetic acid bacteria consortium as an inoculant. Juice had the lowest pH and highest total acidity (TA). The wine had the highest pH and vinegars lowest TA. Total soluble solids and L-malic acid decreased during AF and acetous fermentation. Volatile acidity concentration was not different among vinegars. Gallic, syringic, caffeic, p-coumaric, and chlorogenic acids increased during acetous fermentation, whereas ferulic, sinapic, and protocatechuic acids decreased. Chlorogenic acid was the most abundant phenolic acid in both wines and vinegars. It is evident from this investigation that Kei-apple vinegar is a source of plant-derived phenolics, which evolved through fermentation. However, the AAB selection showed minimal performance with respect to VA production. Acetic acid bacteria selection for acetous fermentation should be reconsidered, and the reasons for the decrease of certain phenolic acids during acetous fermentation needs to be investigated.

Keywords : acetic acid bacteria, acetous fermentation, liquid chromatography, phenolic acids

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