

**OPTIMIZATION OF DETERMINATION OF
ORGANIC ACID IN COMMERCIAL
FERMENTED RED DRAGON FRUIT
ENZYMATIC DRINK
BY HPLC**

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ABSTRACT

The determination of organic acids is important because of their influence in organoleptic properties (flavour, colour and aroma) and in the stability and microbiologic control of fermented drink. This study has two main aims which are optimizing high performance liquid chromatogram (HPLC) parameters for the separation of organic acid from dragon fruit enzymatic drink and studying the storage stability of commercial fermented dragon fruit enzymatic drink, Forliko Dragon Fruit Enzyme. The organic acids; acetic acid, citric acid, malic acid, and lactic acid were extracted with water-methanol mixture solution 98:2 (v/v) and were analysed through Zorbax eclipse plus C18 column using UV absorbance detector at 210 nm. Two mobile phase solution (formic acid and sulphuric acid) and two solution dilutions (water and mobile phase composition) were tested in preliminary test. In this study, the changes of organic acids content were observed at storage temperature (room temperature, 30°C and chill temperature, 4°C) and storage time (0, 1, and 2 months). In preliminary test of optimizing HPLC parameters, sulphuric acid was selected to be the mobile phase and mobile phase composition was selected as the dilution solution. From the optimization mobile phase by sulphuric acid, straight baseline was reached and number of overlapped peaks was lesser but its resolution was 1.348, showed that the separation was incomplete. In quantifying organic acids contents, only acetic acid and lactic acid were detected, malic acid was able to be detected on the 1 and 2 month sample stored at room temperature. Overall, the experimental results show insignificant effects ($p>0.05$) on all organic acids for both of storage conditions, storage temperature and storage time. The insignificant changes might be caused by stability of acetic and lactic acid bacteria. Their stability may be affected by nature factors such as oxygen, pH, ethanol concentration, temperature, addition sulphur dioxide and carbon dioxide prior bottling, and pasteurization. Last but not least, the overall suggested that organic acids content of Forliko Dragon Fruit Enzyme was stable for consumption up to 2 months when stored at room temperature and chill temperature. Further studies can be aimed at studying the storage stability of self-fermented dragon fruit enzymatic drink therefore exclusive determination of initial organic acid from fruit can be carried out.