

EFFECT OF EXTERNAL PARAMETERS ON
PHYSICO-CHEMICAL PROPERTIES AND
PERCENTAGE OF RECOVERY VOLUME
OF RED DRAGON FRUIT (*Hylocereus*
polyrhizus) ENZYMATIC DRINKS
(CANE SUGAR SYSTEM)

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2009

ABSTRACT

Red dragon fruit, *Hylocereus polyrhizus* that high in nutrient content has gain in popularity recently. Hereby, traditional process of natural fermentation is getting more attention from public. Effect of external parameters (headspace, duration and temperature) on physico-chemical (pH, total titratable acidity, alcohol, soluble solid content and water activity) attributes and percentage of recovery volume of red dragon fruit enzymatic drink was investigated in the study. Headspace (200g, 400g, 600g and 800g), duration (17, 21, 25 and 29 days) and temperature (25°C and 37°C) of fermentation that involved in current study demonstrated inverse correlation on soluble solid content (SSC) and pH. Headspace revealed significant different ($p < 0.05$) of physico-chemical properties and percentage of recovery volume of enzymatic drink at the first stage of study. 0.45% citric acid, 0.63% lactic acid, 1.02% ethanol and 60.9% of percentage of recovery volume were denoted by sample with lowest fermentation headspace (800g). Meanwhile, fermentation duration showed significant different ($p < 0.05$) of physico-chemical and percentage of recover volume of samples in second stage of study. 21 days of fermentation exhibited 0.85% citric acid, 1.33% lactic acid, 0.96% alcohol as well as 45.4% of percentage of recovery volume. In third stage of study, temperature of fermentation correlated with organic acid, ethanol and percentage of recovery volume. However, temperature inversely correlated with SSC, pH and water activity. Higher lactic acid bacteria (LAB) count in both samples as compare with yeast even though under different fermentation temperature. Highest LAB appeared in enzymatic drink with fermentation temperature of 37°C which is 2.15×10^7 cfu/mL.

