

EFFECTS OF DIFFERENT BROWN SLAB SUGAR AND
LEMON (*Citrus limon*) CONCENTRATIONS ON
SENSORY AND PHYSICOCHEMICAL
PROPERTIES OF RED DRAGON
FRUIT (*Hylocereus polyrhizus*)
ENZYMATIC DRINK

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ABSTRACT

The red dragon fruit, *Hylocereus polyrhizus*, had been extensively cultivated in Malaysia. Owing to its substantial amount of antioxidant and vitamin C, red dragon fruit had gained its reputation as healthy fruit. Product's innovations and the sophisticated technologies had fuel the local market with numerous downstream red dragon fruit by-products. Indeed, the pricy byproduct, red dragon fruit enzymatic drink, is not well-known within the local population. In current study, the effect of vary sugar and lemon concentrations on the sensory and physicochemical characteristics of red dragon fruit enzymatic drink were investigate. Effects of sugar and lemon concentrations showed significant difference ($p < 0.05$) within samples in terms of both sensory and physicochemical attributes. Quantitative Descriptive Analysis (QDA) and physicochemical analysis were used in describing the sensory and physicochemical quality of the developed samples. Through Principal Component Analysis (PCA), samples with 20% slab sugar, 20% slab sugar and 10% lemon with the QDA scores of 79.95% and 83.38% in purple intensity, 58.10% and 42.23% in sweetness, 53.78% and 44.95% in alcohol perception, 63.47% and 79.18% in sourness, 24.95% and 23.43% in bitterness were chosen to be the best formulas to be subjected to consumer (hedonic) test. Application of Partial Least Square (PLS) was a success in revealing the correlations between sweetness and brix ($^{\circ}\text{Bx}$), alcohol perception, bitterness and alcohol content as well as sourness, final pH and total titratable acidity (TTA). Ultimately, in hedonic test, developed formula with 20% slab sugar was the most preferred product compared to other commercial and developed products with the hedonic score of 67.78% in overall acceptability. Antioxidant activity of sample with 20% brown slab sugar was successfully shown with 36.98mg of GAE/g in total phenolic content (TPC) assay, 1.88mM of TEAC/mg in 2, 2-Azino-bis(3-ethyl benzothiazoline-6-sulfonic acid) (ABTS) assay and 155.10 μM of TE/g in 2, 2-Diphenyl-1-picrylhydrazyl (DPPH) free radicals scavenging activity assay.

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