Development of different processed products from the edible and inedible parts of the dragon fruit (*Hylocereus undatus*)

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Abstract

Dragon fruit (*Hylocereus undatus*) is widely grown in central and southern provinces of Vietnam. Processing is important to produce value-added products from the edible and non-edible parts of the fruit and plant, and at the same time, minimize the problems of fruit perishability and waste disposal. A series of studies was conducted to optimize the processing of wine from fruit pulp, betacyanin and jam from fruit peel, soft drink from plant stems, and tea from flowers. Based on these studies, optimized protocols were developed. For wine processing, the best yeast formula was 50% (v/v) *S. ovifomis* and 50% (v/v) *S. vini*. This wine produced had 12% (v/v) ethanol content, pH 3.48, and 6.27°Brix value. For extracting betacyanin, predrying to 32% moisture content was done at 55°C for 45-60 min before extraction using 1:5 (g: ml) raw material and water ratio, pH 5.0, and temperature of 25°C for 10 min; this protocol yielded 14.82% betacyanin. For producing jam from fruit skin, 0.3% pectinase and 0.2% pectin to produce a product of good structure, color and taste. For making soft drink from plant stems, moderately accepted product was produced after 2 h of incubation with 0.25% Pectinex Ultra SP at 45-55°C and pH 4.5. Effective extraction volume was observed at the ratio of 1:4 (raw material and water), blending ratio of 10.4% sugar, 0.1% citric acid, 0.03% Kiwi flavor and pasteurization temperature 95°C for 10 min. For producing teat from the flower remnants, the product mix included 10% dried dragon fruit flower, 0.2% licorice, 0.08% acid citric, 0.03% aroma, 9% sugar and 80.69% water; the product had brownish yellow color, taste and aroma better than other tea products in the Vietnamese market.