

Thesis Title	Development on Processing of Half-Ripened and Fully-Ripened Karanda ( <i>Carissa carandas</i> ) Fruits	ได้ตรวจลงความถูกต้องเรียบร้อยแล้ว
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Degree	Master of Science	อาจารย์ที่ปรึกษา.....
Field of Study	Science Education	วิชา.....
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### ABSTRACT

The objectives of this study were to 1) examine the phytochemical properties of the half-ripened and fully-ripened stages of karanda fruits, 2) develop products using half-ripened and fully-ripened karanda pulp and juice, 3) develop products using karanda spicy candy and drinks with recipes involving stevia which were based on community product standards, and 4) transfer the knowledge to communities by organizing workshops. The karanda fruit pulp was separated from its juice and was used for making karanda spicy candy and drinks with recipes involving stevia. The products were analysed for pH, total acidity, vitamin C, anthocyanin, anti-oxidants, color, energy, moisture, score of overall satisfaction, and a microbiology test to meet the community product standards.

The results revealed that:

1) There were significant differences ( $p \leq 0.05$ ) in the amount of vitamin C, anthocyanin, and anti-oxidant activity in the pulp and juice of the different karanda ripeness stages. The highest vitamin C content (1,109.22 mg/ 100 g) was obtained from half-ripened karanda juice, whereas the highest anthocyanin levels (59.00 mg/L) and the highest anti-oxidant activity ( $EC_{50} = 13$  mg/ml) were obtained from fully-ripened karanda juice.

2) For the product development using karanda spicy candy, the highest score of overall acceptability was for half-ripened karanda spicy candy ( $7.87 \pm 0.73$  scores). The final product had a moisture content of 0.10%, and the vitamin C content and energy were found to be 143.21 mg/ 100 g and 3.58 kcal/g, respectively. For the product development of karanda drinks, the highest score of overall acceptability was for a recipe using fully-ripened fruit ( $7.97 \pm 0.56$  scores). The final product had a vitamin C content 7.85 mg/ 100 g, anthocyanin content of 42.58 mg/L, anti-oxidant, reported as an  $EC_{50}$  of DPPH scavenging radical activity, was 4.69 mg/ml, and energy per milliliter was 2.47 kcal. In addition, the fully-ripened karanda drink