

Edible Canna and its Starch: An Under-Exploited Starch-Producing Plant Resource

Nobuyuki Tanaka ^{a)}, Naoyoshi Inouch ^{b)}, and Tetsuo Koyama ^{a)}

a) Kochi Prefectural Makino Botanical Garden

4200-6, Godaisan, Kochi 781-8125, Japan

b) Department of Applied Biological Science, Faculty of Life Science and Biotechnology, Fukuyama University

Sanzo, 1, Gakuen-cho, Fukuyama-shi, Hiroshima 729-0292, Japan

Summary

The edible canna, a robust perennial herb belonging to the family Cannaceae, is an under-exploited starch-producing plant native to the new world tropics. Its starch granules are the largest ever measured in any plant. Although canna plants are native to the new world, their cultivation has now spread throughout the tropics and subtropics of Asia. Thus far, we have studied edible canna in Asia from both economic botanical and taxonomic perspectives. This article gives a review of edible canna in terms of taxonomy, agronomy, economic botany and the chemistry of its starch based upon our data and that available in the literature. The utilization of edible canna in various areas is summarized from our field studies and other reports in the literature. In addition, an analysis of edible canna starch collected from Vietnam, where the plant's rhizomes are used to make noodles, was conducted. The edible canna starch was shown to have a large granule size, slightly higher amylase content, longer amylopectin unit-chains, a lower gelatinization temperature, and higher viscosity and retrogradation in comparison with maize starch.