

Deviation of Chemical Properties of Kithul (*Caryota urens*) Flour Obtained from Five Different Growing Areas in Sri Lanka.

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Abstract- Kithul (*Caryota urens*) flour is a good ingredient for food applications having considerable gelling property. The objectives of this study were to analyze the proximate composition of Kithul flour and study differences among flour samples from five main Kithul growing areas in Sri Lanka. Kithul flour (*Caryota urens*) samples were collected from both household and commercial markets representing five main Kithul growing districts in Sri Lanka namely Rathnapura, Kegalle, Kandy, Matale and Kurunegala district. According to the results of proximate analysis, there were significant differences ($p < 0.05$) among flour samples obtained from the selected districts in Sri Lanka with respect to moisture content, ash, total fat, protein and crude fiber. As per the results moisture content ranged from 8.58% to 11.41% while protein content ranged from 0.92 to 1.09 g/100g (dry basis). Mean value of the total fat content was 0.36 ± 0.09 g/100g (dry basis) and Crude fiber content and ash content were ranged from 0.85 to 1.34 g/100g (dry basis) and 0.24% to 1.12%, respectively. However, no significant differences ($P > 0.05$) were presented among samples for analyzed three minerals (Na, Fe, and Zn). Calcium content of the Kithul flour was significantly lower ($p < 0.05$) in samples from Kandy (38.95 ± 12.07 mg/100g) compared to those from all other districts, while Potassium content was lower ($p < 0.05$) in flour from Kandy (28.22 ± 3.57 mg/100g) compared to samples from other four districts. Analyzed results revealed that there were significant differences among Kithul flour samples obtained from five main growing districts with respect to chemical composition except Sodium, Iron and Zinc content, which could be a considerable point for using composite Kithul flour

from different growing areas for future food applications.

Index Terms- Kithul flour, *Caryota urens*, chemical composition, Kithul growing area, mineral content, proximate analysis

I. INTRODUCTION

Kithul (*Caryota urens*) is native to India, Sri Lanka and Malaysia (Rajyalakshmi 2004, 144-149) with different names as sopari (Bengali); toddy palm, fishtail palm, Indian sago palm, wine palm, jaggery palm, kitul palm (English); mari (Hindi); mada, dirgha (Sanskrit); kitul (Sinhala); and kundal panai, koondalpanai, thippali, tippili, konda panna (Tamil) (Orwa 2009, 1-5). The genus *Caryota* has 27 species found among tropical Asian countries (especially in Malay Archipelago, Australia, and New Guinea) as different types of palms. The scientific name *Caryota* forms by the Greek word of *karyotes*, ("nutlike"). This word mentions about the small, hard fruits of the palms. *Urens* means "burning," and describes the outer shell of the Kithul fruits (Yvonne 1995, 161-176). According to literature in Sri Lanka Kithul palms are common in the mid and low country interior up to 1,500 m (Yvonne 1995, 161-176), while its biophysical limit is altitude up to 1200 m (Orwa 2009, 1-5). In the lowlands, the palms occur predominantly in the natural forests (Yvonne 1995, 161-176).

The starch stored in trunk of the Kithul tree is the main edible food product of this palm. According to the reported values, palm generates