European Journal of Academic Essays 2(7): 23-27, 2015
ISSN (online): 2183-1904
ISSN (print): 2183-3818
www.euroessays.org

Changes in Colour attributes of Kithul (*Caryota urens*) flour stored in Refrigerated (4°c) Condition

J A A C Wijesinghe[1*], I. Wicramasinghe[2] and K.H Saranandha[3]

[1,2]Department of Food Science and Technology, Faculty of Applied Sciences,
University of Sri Jayewardenapura, Gangodawila, Nugegoda,Sri Lanka.
lucky.research@yahoo.com[1], indiraw@sjp.ac.lk[2]*

[3]Food Research Unit
Gannoruwa
saranandahewage@yahoo.com[3]

Abstract: Colour of the food is the first consideration for quality evaluated by consumers. This paper is aimed to evaluate the colour as to define criteria for differentiation of fresh and one year old flour samples. Kithul flour (*Caryota urens*) colour were evaluated in terms of lightness (L*) value , redness(a*) value ,yellowness (b*) values as well as the total colour difference(ΔE). Kithul flour samples which were collected from five main growing areas presented significant difference ($p< 0.05$) among their colour attributes during shelf life which was stored in refrigerated condition (4°C). According to the instrumental measurements, lightness value has significantly changed ($P<0.05$) by improving after one year time period. Nevertheless redness and yellowness value has not significantly changed after one year time period. However redness has improved while yellowness has decreased with the time .According to the colour attributes of flour samples Matale (ΔE=34.77) and Kegalle (ΔE=34.65) had a greater deviation from the standard colour value than the other samples. Kandy area presented the least deviation from standard as ΔE=30.24 at the initial stage. With the time colour difference has decreased for all samples. In the case of Kurunegala (ΔE=29.50) and Kandy (ΔE=29.37) flour are shown least colour deviation than other three areas. However time could be directly influence on reduction of colour difference (ΔE) of flour although it was stored in refrigerated and air–tightened condition. However this can be a focal point for food applications in future to choose better storage condition to keep original colour of the flour.

Keywords: Kithul flour, Refrigerated condition ,Colour variation, storage condition, shelf life, L* a* b* values

1. Introduction

Palms are aconstructive source of food products and medicine [1], and starch is a major renewable resource beside cellulose which forms the chief source of carbohydrate in the human diet [2]. Kithul (*Caryota urens*) palm ,which is indigenous to India, Malaysia, Myanmar, Nepal, and Sri Lanka[3],is identified as a multipurpose tree.It provides both edible and non-edible products. Edible products from Kithul tree include sweet toddy, Kithul treacle, Kithul toddy and Kithul jaggery as well as Kithul flour [1] which still remains as an unexploited resource in food industry.This flour which is equal in quality to industrial sago obtained from *Metroxylan Sagu Rottb*, plays a very important role as a food source [2].

For the industrial applications quality attributes are very critical, especially when Kithul flour is used to replace existing ingredients.Colour is a cause of perception and depends on interpretation as well as background differences (contrast effect), directional differences or observer differences or Size differences (area effect).To eliminate these errors ,and create a universal language for colour reading ,numerical system is the best method. By creating scales for hue, lightness, and saturation, colour could be transferred to a numerical value.

[4]. Colour is one of the most influential characteristics of a final food, especially in the case of flour as raw material,modern consumer mainly considers the overall appearance of the flour including the colour [4]. Colour of flour is a noiselesspointer for its novelty while it affects the overall point of view on food from both a tasteful and safety point of view [5]. In this way colour determination is one of the beneficialpoints which could be used for the improvement of flour quality.

The International Commission on Illumination (CIE) serves to define the location of any colour in uniform space by correlating the colour attributes of L*,a* and b* (1976) [6] which can be measured using a Chroma meter. This instrument enables users to directly determine the colour on the flour [7] by generating L*, a* and b* values. This readings subjective for the sensorial are brightness, lightness, hue, saturation, Chroma and colourfulness [8] . *L** is a function of measure of

Corresponding Author: J A A C Wijesinghe, University of Sri Jayewardenapura, Sri Lanka,
E.Mail: lucky.research@yahoo.com T.P: +94777717798