Evaluation of Physicochemical and Antioxidant Property of Dehydrated Hibiscus (*Hibiscus rosa-sinensis*) Flower Petals and Its Stability in Product Preparation

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Abstract— **The study was conducted to analyze the physico-chemical and antioxidant property of fresh and dehydrated Hibiscus powder petals and its stability in product preparation. The proximate analysis of fresh hibiscus flower petals showed the moisture 89.34%, fat 2.76%, protein 4.12%, total ash 7.23%, fiber 10.75% and anthocyanin content 877.04 mg/100g. Different drying methods were evaluated such as sun drying, solar drying, drying after freezing (Freeze for one hour followed by drying mechanical drying at 55°C), vacuum drying (50°C) and drying using lab scale air oven (55°C) on physiochemical and retention of antioxidants in powder of dehydrated hibiscus flower petals. Higher concentration of protein (4.05) and anthocyanin (107.5 mg/100g) were recorded in vacuum dried sample and it significantly different (α= 0.05) from other treatments. The data on change in physico chemical characteristics of different treatments (jelly powder mix) upon storage of 60 days; the lower moisture content (4.031%) and fat content (0.31%) was recorded by T4 at the end of storage. It was given a significant loss of anthocyanin content during storage and the highest composition was given by T3 (10.47 mg/100g). The colour intensity (L* value) indicated that the product was brighter in appearance and the maximum was recorded by T1 followed by T2 and the higher a* value was recorded by T4 followed by T2. A slight reduction of DPPH radical scavenging activity was observed among dry powder mix vs. the prepared product and it depends upon the composition of hibiscus powder incorporated.**

Index Terms— **dehydration, Antioxidant activity, proximate compositions, hibiscus powder, storage, jelly**

I. INTRODUCTION

Hibiscus is a tropical shrub with red petals is considered to have a number of medical uses in Chinese herbology. It may have potential in cosmetic skin care, an extract shown to function as an anti solar agent by absorbing UV radiation (Nevada *et al.*, 2011). Recently there has been an increased interest in research on food components such as anthocyanins and other phenolic compounds because of their possible linkage to health benefits including reduction in heart disease and censer, based on their antioxidant activity (Seeram *et al.*, 2003) . Colour additives are used in food and beverages for various reasons. Its help to maintain correct natural variation in the actual colour of the product and also should be stable during storage. Also, it makes products more visually appearing and they emphasize or identify flavours normally associated with various applications. The use of natural derived colours in food applications has increased considerably over the recent past due to consumer demand for natural products and consumer avoidance of artificial food additives. The market for natural food colourings continue to get brighter as more attention is paid to research linking artificial food dyes with hyperactivity and other behavioural problems in children are increasingly looking for natural coloured food products. Anthocyanins are the group of natural plant pigments, which have been used to colour foods since historical times. Anthocyanins are sensitive to pH changes and give a red colour at acidic conditions (Mortensen, 2006).Therefore, this research was proposed and carried out with the objective of use of natural colorant as an alternative for artificial colorants the use in instant type commercial food applications and evaluates its antioxidant potential.

II. MATERIALS AND METHODS

2.1. Sample preparation:

A fresh flower of Hibiscus (*H. rosasenensis*) with no apparent physical, insect or microbial damage was