

CURRENT RESEARCH AND DEVELOPMENT IN BIOTECHNOLOGY ENGINEERING AT IIUM

VOLUME II

Editors:

Ibrahim Ali Noorbatcha
Hamzah Mohd. Salleh
Mohamed Elwathig Saeed Mirghani
Raha Ahmad Raus



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International Islamic University Malaysia**



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CHAPTER 15

PREPARATION OF NUTRITIOUS DRINK FROM DATE PALM KERNEL (DPK)

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ABSTRACT

This study was carried out to search the potential of using date palm kernel (DPK) as value-added components to be included in food products. Date pits (kernels) were used in food industry to produce edible nutritious DPK drink. After the DPK powder was confirmed to be free from any toxin, the DPK powder was analyzed for the nutritional compounds which resulted in protein 0.9809 mg/g, glucose 0.7351 g/L and fructose 0.6 g/L. Analysis of the mineral elements in the ash gave the following average values: Cu, 0.9227 mg/g; Ca, 2.0352 mg/g; Fe, 0.9108 mg/g; Mn, 0.4285 mg/g; Mg, 4.99 mg/g and K, 6.74 mg/g. Oil content was 8%. The experiment was continued with the preparation of the DPK drink and the nutritional values of DPK drink were analyzed in which the differences in the measurement were not very significant. Factorial design was used for the optimization with 3 independent variables which were the volume of water and the amount of sucrose and citric acid. The maximum overall acceptability through the sensory evaluation was achieved for the DPK drink formulation of 150 ml water, 300 g sucrose and 4 g citric acid with the dilution of 1:3. Analysis of the result was evaluated by using Design-Expert (DX6) software by statistical tools.

Keywords: Date Palm Kernel (DPK), DPK drink, nutritional values, sensory evaluation.

INTRODUCTION

The botanical name of date palm, *Phoenix dactylifera* L., (*Palmaceae*), originates from its fruit “*Phoenix*” presumably derived from the Greek word for purple or red fruit, and “*dactylifera*” from the Greek word “*datulos*” which means finger like appearance of the fruit’s form (Chao and Krueger, 2007; Zaid and de Wet, 2002). The genus “*Phoenix*” comprises 12 species most of which are well known as ornamental plants. The date palm (*Phoenix dactylifera* L.) is one of the oldest cultivated plants on earth, dating back to perhaps 30-70 million years or more. Date palm tree is grown extensively in arid and semiarid regions of the world, like northern Africa, the Arabian Peninsula and Iran (Ahmed et al., 1995). It is believed to be indigenous in the lands around the Arabic Gulf or Mesopotamia area. In ancient times, it was especially abundant