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Master Thesis Defense

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DATE FRUIT POWDER

by

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Date & Venue

9:00 am

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Abstract

The aim of this thesis was to study the possibilities for production and the characterization of powder from date fruits (*Phoenix dactylifera* L.). Various techniques including tray drying, freeze drying, vacuum drying, microwave drying, convection drying were tested for their ability to dry the dates sufficiently to produce a date powder. Six varieties of dates namely Barhi and Khalas (soft varieties), Sagei and Sukari (semi-dry varieties), and Barakawi and Gundeila (dry varieties) were evaluated for their drying characteristics. The drying parameters and the physico-chemical characteristics were compared and a storage study for the date powder was conducted. It was observed that variations in moisture content existed within a variety. Only the convection drying technique of semi-dry and dry varieties were suitable to produce a powder. Sukkari and Barakawi were cabinet dried at 65, 70 and 75°C, after which the dates were milled. The most suitable temperature for drying was observed to be 70 °C. Higher temperatures were associated with increased formation of hydroxymethyl furfural and darkness. Finer versions (<400µm) showed lower flowability, high compactibility and increased hygroscopicity compared to coarser counterparts. Storing the date powder for a month in a jar (one teaspoon was removed per day) showed that the moisture content increased from 2 to 8% during the storage period and hardness increased linearly upto 17 days.

Keywords: Date fruits, *Phoenix dactylifera*, Drying, Date powder, Quality