Board Made of Palm Fronds and Trunks

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ABSTRACT---- ***The current study was conducted in both date palm research center and polymers research center / Basrah University during the period 2015-2016 . the result showed that the average length of female trunk fibers ranging between (716 -879) micrometer and its diameter (22.4-22.7) micrometer . The study also showed that the average length and fiber diameter of petiole (leaf base) and rachis of three cultivars (Kadrawi ,Zahdi and Sayer) were not significantly differ and ranging between (1010- 1258) micrometer and (14.2-22.6) micrometer respectively. This study also include preparation of medium density fiber board(MDF) made of palm frond and trunk fibers. The*** flexural ***strength reach 3.5 Mp and compressive strength reach 6.6 Mp This study also revealed that Bending strength and compressive strength of boards are depending on the ratio of cement added .the physical properties are improved by additive the cement, therefor we can used the cement with the (poly vinylestate and polol) to improved water absorption and thickness swelling of board. MDF density are about 250-710 Kg/m3. The bending test are about 1.7-3.5*** **Mp**

Keywords----- Date palm trunk , date palm fronds , date palm petiole, date palm research center ,

1. INTRODUCTION

Fiber is an elongated cell with tapering end and thick secondary cell wall, non living at maturity , they are found in different plant part (Dickison ,2000) . fiber are divided into two groups xylary fibers and extraxylary fibers . (Esau ,1950).according to Paula J. Rudall (2007) extraxylary (cortical fibres) are of economic use, such as flax and hemp.

In monocotyledon plant fiber enclose vascular bundles in the form of strand or bundle cap associated with vascular bundles (Dickison ,2000) According to A. Al-Khanbashi, et.al (2005) date palm fiber is cylindrical in shape, SEM micrograph of a raw fiber show that its surface contain a large number of uncompleted grown fibers (expected to be residual lignin) and artificial impurities (sand and dust).

Fiber length differ according to the source ; for the soft fiber its length range from 0.8- 6 mm in Jute , 5- 55 mm in cannabis ,9-70mm in linum (Linum usitatissimum L). and 50-250mm in ramie .While in hard fiber its length ranging between 0.8-8 mm in sisals and bow string hemp between 1-7mm (Al-ani and Kaser,1979) . In date palm fiber length were varying between 1-1,3 mm and its diameter between 10-40 micrometer (Mahdavi et al,2010). Leaf Stalk . Mirmehdi et al .(2010) found that the

fiber length, diameter, lumen diameter, and cell wall thickness were measured at 1393.66 µm, 18.1 µm, 7.65 µm, and 5.23 µm respectively and leaflet fibers were measured at 1413.71 µm, 15.18 µm, 7.06 µm, and 4.06 µm respectively.

Date palm trunk characterize by the presence of fully developed vascular bundles in central cylinder and some fibrous cortical bundles (Zimmermann and. Tomlinson ,1972), The general stem organisation is highly homogeneous,however there are few differences in the structure and the density of the fibrovascular bundles between the central zone and the