Experimental Study on Addition Palm Date Fibers as Reinforcement in Gypsum Mortar

Abstract— Libya is considered one of the advanced Arab countries in the cultivation of palm trees, as it occupies the fifth place in the Arab world with about 8 million palm trees planted on an area estimated at about 70 thousand hectares. The present paper aims to characterize date-palm fiber-reinforced gypsum mortar, where different percentage of palm fibers was added by substitution of a variable percentage of gypsum weight. . Physical properties of fibers have been measured as volumetric density, coefficient of absorption and water content. Moreover, it is known that the natural fibers include high content of hydroxyl groups (OH) which causes the hydrophilic behavior. Natural date palm fibers have used without treatment. For mortar cured up to 28 days, its composition which report W/G = 0.6. The mechanical behavior of hardened reinforced matrix of different lengths (1.3-19 cm) and kinds has been studied using compression test. Cubic specimens' compressive strength was (7x7x7 cm), are removed after 24 hours and then conserved in dry air at 28 days for mechanical testing.