



Physical and mechanical properties of date pits and HDPE for composit production

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The possibility of producing composites from date pits flour as a filling material and HDPE as the matrix was investigated. The date pit proportions in the mixture were 1) 10%, 2) 20%, 3, 30% (and 4) 40%. Thermal conductivities of the blends were measured using a linear thermal probe. The thermal conductivities ranged from 0.460 to 0.720 W/(m°C) and they increases with increase in the percentage of the date pit flour and the temperature of the blends. Composite plates were fabricated from the blend flours using a hydraulic press, operating at 180±10°C. The moduli of elasticity of the composite made from the date pits flour were higher than the composite prepared from virgin HDPE at 130°C, but the moduli were lower than the HDPE samples processed at 180°C. It was presumed that high temperature processing of HDPE altered its original properties and consequently increased its modulus of elasticity. The flexural tests indicated that adding about 20% date pits flour to HDPE will give the highest modulus of elasticity for the resulting composites .

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