

Effect of surface area of clay pots on physicochemical and microbiological properties of stingless bee (*Geniotrigona thoracica*) honey

ABSTRACT

In this research NaOH treated date palm fibres were used as reinforcement in phenolic based composites. The composites were prepared by hot press technique and evaluated tensile flexural, structural, thermo gravimetric dynamic mechanical properties. Overall properties of modification/treatment of fibers' surface enhanced, that have been studied as compared to untreated samples. The treated samples of 50% DPF composites showed highest Tensile properties among all composites but flexural properties declined compared to the untreated composites but this decline is very less. Fibre treatment showed declined properties of three point bending of DPF composites. Scanning Electron Microscopy studied the behavior of fibre and matrix bonding before and after treatment. Treated 50% DPF showed better fibre distribution, 60% DPF showed void content however 40%DPF showed poor fibre/matrix interfacial bonding. Thermogravimetric analysis studied the behavior of Treated DPF/Phenolic composites at high temperature, and found thermal stability enhanced because good interfacial bonding. Dynamic mechanical analysis showed that stability at stress of material with temperature and also studied the energy dissipation and internal friction. Treated 50%DPF showed better properties due to the ratio of mixing of fibre/matrix and better interfacial bonding. DPF composite have potential to use for exterior applications and false wall and roof.

Keyword: Date palm fibre; Fibre treatment; Phenolic resin; Mechanical properties; Scanning Electron Microscopy; Thermal properties