

Comparative study of physical properties based on different parts of sugar palm fiber reinforced unsaturated polyester composites.

ABSTRACT

This research was conducted to evaluate the potential of sugar palm residue as a raw material to produce the new green composites. The physical properties of sugar palm fibre reinforced unsaturated polyester composites from different part which are sugar palm frond (SPF/PE), sugar palm bunch (SPB/PE), sugar palm trunk (SPT/PE) and black sugar palm fibre (ijuk/PE) were studied. Samples were submerged in distilled water for 24 hours. The water absorption and thickness swelling were investigated in order to determine the dimensional stability of the composites. It is found that SPF/PE showed the higher value of water absorption and thickness swelling which are 1.57%, and 1.56% followed by SPB/PE (1.35%, 1.11%), ijuk/PE (0.65%, 0.76%) and SPT/PE (0.39%, 0.50%). Generally, this investigation is valuable for researchers in order to evaluate the potential and some possible application of sugar palm residues as a new natural composites product.

Keyword: Physical properties; Water absorption; Thickness swelling.