

Application of hybrid sugar palm-filled polyurethane composites in conceptual design of an automotive anti-roll bar

ABSTRACT

Forest products are important sources of income in developing countries like Malaysia and research on utilizing them has intensified. One of the forest products that is investigated at Universiti Putra Malaysia is sugar palm (*Arenga pinnata*). Biocomposites made from sugar palm fiber and biopolymers have been developed using different types of plasticizers. In addition, sugar palm fiber alone can be a good raw material for various domestic products like brooms, ropes, roofs and headgear, just to name a few. The most recent work on sugar palm bio-composites was devoted to fabricating an automotive component, i.e. an anti-roll bar, from hybrid glass/sugar palm fiber-filled polyurethane composites. The conceptual design of the automotive anti-roll bar was developed and refined. The conceptual design was developed according to the design requirements and characteristics of the sugar palm composite. Reinforcement of the rib in the anti-roll bar's design showed an improvement in terms of the stiffness of the anti-roll bar.

Keyword: Forest products; Bio-composites; Sugar palm; Product development