Mechanical and physical performance of cowdung-based polypropylene biocomposites

ABSTRACT

In this work, potential of cow dung (CD) as a reinforcing material was evaluated. CD was blended in different ratios up to 50 wt% with polypropylene (PP) using Brabender twin-screw compounder. The results show a steady decline in the biocomposite tensile and impact strength with increasing CD loading. In contrast, the storage modulus (E′), flexural modulus, and water absorption capacity of the biocomposites increased with increasing CD loading. Furthermore, it was revealed by SEM that the failure of the PP/CD biocomposites at higher filler loading was because of the week interfacial bonding. Results established that the properties of PP/CD biocomposites are a function of CD loading.

Keyword: Cowdung-based polypropylene biocomposites; Cow dung; Biocomposite