GrasCPAC (Sustainable Packaging from Cocopeat and Grass Fibres)

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The goal of this study is to provide an alternative to the disposable plastics that are commonly used in packaging. Plastic waste is becoming a significant source of waste disposal not only in our region but globally. The GrasCPAC project uses grass fibers to create a sustainable moulded packaging material from cocopeat (Cocos nucifera), lemongrass (Cymbopogon citratus), and cogon grass (Imperata cylindrica). Those materials are boiled in boiling water with soda ash before being processed into pulp fibers. The pulped fiber mixture is then moulded with the Papier-mâché technique. The drying procedure can take anywhere between 6 and 12 hours to complete the formed mixture. Furthermore, because the drying process is powered by sunlight, no energy is wasted. In the testing stages, some experiments are used to investigate the suitability of the packaging, such as biodegradable tests, tensile strength tests, load tests, heatproof tests, mold growth tests, and water absorption tests. GrasCPAC has shown its capability to biodegrade approximately 27% after 2 weeks as a result of its natural decomposition ability, ability to sustain 1883.5 N m-1 of breaking stress and with a force of 19.6 N in the load and tensile strength tests, which is better than the regular packaging, can withstand temperatures up to 180 °C when cooked in an oven, has a low rate of mold growth when using this product, and able to absorb 15% of water per minute. These features provide several environmental benefits, including low cost, lightweight, renewability, biodegradability, and high specific qualities. Keyword: sustainable package, GrasCPAC, cocopeat, lemongrass, cogon grass

Awards Won:

Fourth Award of $500