Compostable Flame-resistant Hydrophilic Psyllium Paper with Strengthening Fibers of Banana and Paddy Husk

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Paper is arguably one of the most important items that human society had ever invented. In the process of papermaking Trees are the most critical raw materials furthermore it contributes to deforestation and pollution. Psyllium Husk, Paddy Husk and Banana peel are not utilized properly and efficiently which often ended up in landfills. In view of these two unrelated and yet environmental problems, this project accomplished making a paper that had not impact negatively on soil nor the environment and acted as a soil amendment. Alternative to Wood, Psyllium and Rice Husk with Banana peel made an easy adaptable process to obtain paper pulp as it requires less capital investment with little energy consumption. Each raw material was collected, cleaned, cooked and amalgamated into pulp and afterwards the fibers were collected with the help of paper mold. To ensure the prevention against pollution papers were dyed using natural colors obtained from fruits and vegetables. Psyllium husk contain 70% soluble fibers that were acting as binding agent overall strengthening the paper. Prepared two samples, one with rice husk and second without it. Samples were analyzed by using TAPPI METHOD/ASTM, the physical and mechanical properties of both papers were examined through these tests: 1) pH value 2) Basis Weight 3) Water Absorptivity 4) Moisture content 5) Ash content 6) Thickness 7) Fiber Analysis. The study showed that the sample which includes rice husk had better quality and strength. Its neutral pH value didn’t effect the soil’s performance and these hand-made paper has the ability to be used as an eco-friendly packaging, cover pages of books, paper bags etc. This was also a suitable alternative to the non-biodegradable plastics, a cause of ecological and environmental pollution.

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