TRACK: AGRIBUSINESS, POLICY, AND RURAL TRANSFORMATION

Formulation of herbal dry shampoo powder using palmyrah (*Borrassus flabellifer*) tender leaves

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Natural hair care products are becoming more and more popular as people become more conscious of the negative consequences of artificial, synthetic hair care products. This research study concentrated to develop a herbal dry shampoo powder using the tender leaves of Palmyrah (*Borassus flabellifer*) to treat dandruff. Palmyrah tender leaves are generally considered as a herbal medicine for treating bacterial and fungal growth. Palmyrah tender leaves, along with Shikakai, Soapberry, Fenugreek, and Hibiscus petals, were dried and powdered. These powders were then mixed in a 1:1:1:1:1 ratio. The mixture was further dried to 9.5% moisture content and tested for anti-fungal effects. The treatments used were T1 (control), T2, T3, T4, T5, and T6. The results showed that Treatment 2 (Palmyrah male inflorescence: 20 g, Red hibiscus petals: 20 g, *Acacia concinna*: 20 g, Soapberry: 20 g, Fenugreek: 20 g) exhibited higher dandruff inhibition than Treatment 3 (Palmyrah tender leaves: 20 g, Red hibiscus petals: 20 g, *Acacia concinna*: 20 g, Soapberry: 20 g, Fenugreek: 20 g). However, T2 had higher yeast and mold levels, making it unsuitable. There was no significant difference in inhibition between T2 and T3 ($p>0.05$), but the high yeast and mold in T2 led to its rejection. Treatment 3, containing palmyrah tender leaves, was selected as the best formulation for its antifungal properties and microbiological stability. It is the most effective treatment for controlling microbial growth in hair and can be used as a natural anti-dandruff shampoo powder.

Keywords: *Antimicrobial properties, Herbal dry shampoo, Palmyrah tender leaves, Sensory analysis, Shelf life*