Eco Friendly Antibacterial and Antifungal Cookware for Rice Cakes

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Pandanus unipapillatus of Pandanaceae family, common in coastal belt, Western Ghats along banks of streams, marshy places is investigated for its potential antibacterial and antifungal properties.The P.unipapillatus leaves are kept in sun shade for its flexibility, dipped in water. Thorns are removed; leaves are flattened, bent, tied in cylindrical shape using broom sticks and used as a cookware for rice cakes. This container with rice batter is kept for steaming and served. Majority of the consumers liked the products; however there was difference in texture hardness/softness values was observed. Quality characteristics of rice cakes are studied by taking normal rice cake and bread as negative and positive controls respectively. The observation proved that P. unipapillatus leaf cookware is having more shelf-life for rice cakes. Antimicrobial activity of P.unipapillatus leaf aqueous extract was evaluated against four bacterial, two fungal strains using Gentamycin, Nystatin as positive control by disc diffusion method (in nutrient agar and potato dextrose). The P.unipapillatus, leaf showed maximum activity against S. aureus as indicated by MIC value (98.0±3.92mg/ml), followed by B. Subtilis (119.0±4.27mg/ml). The vertical section of P.unipapillatus, leaf revealed thick cuticle, gum-resin canals, responsible for aromatic property and preservative quality. Bio-assays showed presence of multiple specifically active compounds at different Rf values in the leaf extract. ATR showed the presence of carbonyl, hydroxyl, amine groups. Thus, cultivation of P. unipapillatus, plant is to be promoted. In depth investigation is required to isolate, identify and characterise the components which are responsible for the beneficial effects of the P.unipapillatus.