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Physiochemical properties of rice based herbal biscuit incorporated with the decoction of *Syzygium cumini* bark

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Diabetes mellitus is a widespread debilitating disease in the modern-day world which leads to many health complications affecting the quality of life. Intake of less refined food, herbal decoctions etc. play a vital role in managing diabetes. Scientific experiments have proven the efficacy of some medicinal plants for their therapeutic potential in the management of diabetes mellitus. *Syzygium cumini* (madan) is one of the widely used medicinal plants in the treatment of diabetes mellitus. Traditional rice variety, pachchaperumal is widely known to have many health benefits.

The present study was designed to develop a nutritionally rich diabetic friendly herbal snack incorporating Syzygium cumini decoction and pachchaperumal rice flour as the major ingredients. The biscuit was developed so that a portion of 6 biscuits (44 g) will contribute the daily intake of decoction dose as prescribed in Ayurveda (20 mL).

Physiochemical properties as diameter, thickness, volume, density, weight, texture and colour of the herbal biscuit was determined according to standard AOAC methods and other standard methods. Presence of anti-diabetic compounds in the biscuit was confirmed by HPLC analysis.

The moisture, fat, protein, fiber, carbohydrate and ash contents of the biscuit were 9.86%, 4.74%, and 12.07%, Crude fiber 1.27%, 70.8% and 1.19%, respectively. Physical parameters were within the standard accepted ranges of a biscuit. DPPH antioxidant potential (IC50) of the herbal biscuit was 1.60 mg/L and showed a high antioxidant potential compared with the control sample as 5.66 mg/mL and the standard BHT (Butylated Hydroxy Toluene) as 18.5 mg/mL. The total starch content was 40.4%. The biscuit showed the presence of several important fatty acids as lauric acid, palmitic acid and myristic acid in the fatty acid profile of GC-MS analysis. Presence of gallic acid and ellagic acid which are known antioxidants and hypoglycemic agents was confirmed by HPLC analysis. It can be concluded that the herbal rice biscuit prepared using pachchaperumal rice and the decoction of Syzygium cumini can be considered as a diabetic friendly snack.

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Synthesis, characterization and biological studies of a novel naphthalene-derivatized tridentate ligand and its *fac*-[Re(CO)$_3$L] complex as potential therapeutic agents for lung cancer

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Re(I) compounds, among other organometallic compounds, have recently gained attention as potential anticancer agents. In this study, a novel tridentate ligand (N(SO$_2$)(1-nap)dien) derived from diethylenetriamine (dien) attached to a sulfonamide group, was synthesized in good yield (63% yield) and its net neutral Re(I) complex ([Re(CO)$_3$(*N*(SO$_2$)(1-nap)dien)]) synthesized by treating fac-[Re(CO)$_3$(H$_2$O)$_3$]$^+$ with the synthesized ligand. The compounds were characterized by X-ray diffraction studies, ^{1}H NMR, FT-IR, UV-Vis and fluorescence spectroscopies.
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