

Formulation and Evaluation of Chocolate-Coated Millet Balls: A Sustainable, Functional Snack for Adults

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This study aimed to identify the optimal combination of chocolate-coated millet balls that enhances both nutritional and sensory value. Various formulations incorporating sorghum, finger millet, and kodo millet were tested alongside date paste and chopped peanuts. Through extensive sensory evaluations and nutritional analysis, the blend containing 40% millets, 40% date paste, and 20% chopped peanuts emerged as the most balanced and acceptable option. Millet balls were prepared with chosen ratios (40% millets, 40% date paste, and 20% chopped peanuts) and coated with chocolate, such as sorghum (T1), finger millet (T2), and kodo millet (T3), and control formulation (T4). A control treatment comprising 60% chopped peanuts and 40% date paste was used for baseline comparison, but lacked the same nutritional and sensory balance. These formulations demonstrated superior performance in terms of healthy fats, dietary fibre, and essential minerals. Moisture content, ash content, fibre levels, and mineral composition further validated its nutritional quality. Among the millet types, the chocolate-coated kodo millet ball (T3) received the highest sensory ratings, offering a well-rounded and appealing profile. Sorghum and finger millet variants also showed promise, though minor improvements in flavour and aroma were recommended. Overall, the findings suggest that combining millets with date paste and chopped peanuts yields a nutritious and enjoyable snack, with kodo millet as the most favourable base. This formulation holds potential for health-conscious consumers seeking functional and culturally resonant snack options. Kodo millet balls (T3) recorded the highest sensory acceptability (texture 3.83 ± 0.12 , overall $p < 0.05$) and a balanced nutritional profile with 15.43% sugar, 10.8% fat, 4.42% fibre, and high potassium (333.58 mg/100 g) and magnesium (120.21 mg/100 g), confirming their functional value.

Keywords: Chocolate-coated millet balls, Date paste, Finger millet, Kodo millet, Sorghum