

DEVELOPMENT OF A TAMARIND (*Tamarindus indica*) GUMMY JELLY CANDY

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The development of a tamarind gummy jelly candy represents a novel approach to adding value to underutilized tamarind (*Tamarindus indica*). This addresses the limited product availability of this nutritious and distinctive sweet-sour flavoring fruit in the local market. This study focused on the formulation, production, sensory evaluation, nutritional analysis, physicochemical parameter evaluation, and shelf-life evaluation to develop a healthier, nutritious, and consumer-appealing high-quality product. In the first experiment, five formulations were developed through preliminary trials by optimizing the raw materials and time-temperature combinations. After selecting the best formulation from sensory evaluation, two more experiments were conducted to identify the optimal tamarind incorporation method and the most suitable gelling agent. The best formulation was selected through sensory evaluations along with physicochemical analysis. The selected formulation of tamarind pulp with gelatin consisted of tamarind pulp, (20%), sugar (20%), water (50%), gelatin (10%), and food preservative (0.1%). The moisture content of the product was $38.6 \pm 0.09\%$ and with a low ash content of $0.9 \pm 0.06\%$, and a pH of 4.0 ± 0.08 . The water activity was 0.8 ± 0.01 and the color values (L^* , a^* , b^*) were 35.4 ± 1.25 , 2.1 ± 0.29 , and 4.3 ± 0.30 , respectively. Texture measurement showed a firmness of 10.3 ± 0.73 N while the total soluble solid was $64.3 \pm 0.92^\circ\text{Brix}$. In terms of macronutrients, the product contained crude fat ($0.2 \pm 0.01\%$), crude protein ($23.5 \pm 0.14\%$), and crude fiber ($0.8 \pm 0.09\%$). Additionally, it had an ascorbic acid content of 125 ± 6.56 mg per 100 g, antioxidant capacity (DPPH) of $55.9 \pm 1.46\%$, and total phenolic content of 16.2 ± 1.66 mg g^{-1} GAE. The results revealed that the developed candy possesses acceptable sensory characteristics, and the total plate count, yeast and mold count and *Escherichia coli* were undetectable over the two-month storage period. In conclusion, a tamarind-based gummy jelly candy with a 2-month storage period can be successfully developed, offering a nutritious option for consumers.

Keywords: Physicochemical parameters, Sensory evaluation, Shelf life, Underutilized