

Abstract

Soy whey, a nutrient-rich liquid byproduct produced during tofu production is often discarded, despite its potential for a value-added product. However, fermented soy whey beverages often have undesirable sensory attributes that reduce consumer acceptability. Therefore, this study aims to evaluate the effect of different mango juice formulations on physicochemical and sensory properties of fermented soy whey beverages. *Aspergillus oryzae*, a Generally Recognized as Safe (GRAS) fungus known for its enzymatic activity and its ability for enhancing the availability of bioactive compounds, was used to ferment soy whey. Fermented soy whey beverages were formulated with 0%, 30%, 40%, and 50% mango juice (v/v). Physicochemical properties (pH, color, °Brix, and viscosity) and sensory evaluation using Rate-All-That-Apply (RATA) was evaluated. Higher mango juice concentration significantly increased the pH (4.00-4.11), viscosity (5.81-130.20 cP), redness (a*) (-0.47-3.09), and yellowness (b*) (-1.97-5.84). RATA results obtained showed that mango aroma (0.47-3.60), fruity aroma (1.17-3.11), sweetness (1.07-3.91), and body thickness (1.09-3.51) were observed to significantly increased, while fermented aroma (3.51-0.77), sourness (4.19-2.07), soy/beany flavor (1.93-1.00), and bitterness (2.90-1.31) decreased. The 50:50 formulation received the highest overall liking score (6.91). Overall, the addition of mango juice significantly affected the physicochemical properties and improved the sensory acceptability of fermented soy whey beverage, with the 50:50 formulation being the most preferred.

Keywords: *Aspergillus oryzae*, fermented soy whey, mango juice, physicochemical properties, sensory evaluation