

## Abstract

Despite being considered as a waste by-product, soy whey possesses a considerable amount of organic compounds that could still be further utilized through microbial fermentation with *Aspergillus oryzae*. The objective of this study was to assess the effect of glucose supplementation on the physicochemical properties including pH, °Brix, viscosity, total phenolic content (TPC), total flavonoid content (TFC), and antioxidant capacity of soy whey fermented using *Aspergillus oryzae*. The fermentation was conducted under static conditions for 72 hours using different glucose concentrations (0%, 1%, 3%, and 5% w/v). Antioxidant activity was determined using the DPPH radical scavenging, while TPC and TFC were quantified using the Folin–Ciocalteu and aluminum chloride assays. Glucose supplementation significantly increased °Brix values ( $1.00 \pm 1.10$  to  $5.56 \pm 0.53$ ) and pH, while viscosity remained unchanged (3.12–3.78 cP). The highest TPC and TFC values were obtained at 5% glucose supplementation, reaching  $179.32 \pm 6.98$  mg GAE/L and  $20.25 \pm 1.70$  mg QE/L, respectively. Antioxidant activity also improved with increasing glucose concentration, as indicated by a decrease in IC<sub>50</sub> values from  $330.97 \pm 23.65$  mg/L in the raw soy whey to  $159.77 \pm 13.10$  mg/L in the 5% treatment. These findings indicate that glucose supplementation, particularly at 5%, provides favorable conditions for *A. oryzae* metabolism.

**Key words:** Antioxidant Activity, *Aspergillus oryzae*, Microbial Flavorization, Soy Whey, Total Phenolic Content, Total Flavonoid Content