# PRODUCTION OF NUTRITION RICH OYSTER (*Pleurotus ostreatus*) MUSHROOM SOUP CUBE USING AVAILABLE LOCAL MATERIALS

*Sureshkumar K[1], Kulathunga M.D.J.C.S.[2], and Wijekumari D[3], and Ekanayaka A.H.[1*]*
[1]Department of Urban Bioresources, Faculty of Urban and Aquatic Bioresources, University of Sri Jayewardenepura, Sri Lanka.
[2]Department of Multidisciplinary Studies, Faculty of Urban and Aquatic Bioresources, University of Sri Jayewardenepura, Sri Lanka.
[3]Kithul Wadiya Pvt. Ltd., Sri Lanka.
[*]Corresponding author: anushahasini@sjp.ac.lk

Fresh oyster mushroom (*Pleurotus ostreatus*) is an economically important edible fungus, but its high moisture content and lack of a protective cuticle make it highly perishable, causing substantial postharvest losses. This study aimed to develop a soup cube from oyster mushrooms using locally available ingredients, addressing postharvest loss through value addition. Two sequential approaches were used, each with six treatments (0% control + five mushroom flour concentrations): Approach I (AI) screened a broad range (30 - 70%) over 59 days, Approach II (AII) was developed based on the findings of AI and refined to a narrow concentration 20-40% of mushroom flour with xanthan gum (0.2 g per 50 g batch) as a structural binder, monitored for 35 days; the shorter AII duration reflects its later, staggered start within the same project timeline not a deliberate design choice. Cubes were packaged in oil paper, oversealed with Al foil, and stored at ambient temperature in zip-lock bags and plastic containers to compare storage conditions. Bulk density increased significantly ($p < 0.001$) with mushroom concentration, and AII achieved better weight uniformity (CV < 5%) than AI. Total yeast and mold counts remained within the ICMSF limit ($10^5$ CFU/g) until Day 11 in AI and Day 18 in AII, indicating the practical microbiologically acceptable storage periods. Based on superior physicochemical and microbial performance, AII was selected for sensory evaluation, where 45 semi-trained panelists identified AII-T4 (35% mushroom flour) as the most acceptable formulation, with appearance the strongest predictor of acceptability ($\beta = 0.386$, $R^2 = 0.818$). Each 5 g serving of the optimal formulation (35% mushroom flour, 25% cassava flour, 40% vegetable and spice powder mix, and xanthan gum) delivers 16.8 kcal, 0.64 g protein, 0.35 g fiber, and 118 mg sodium, an 85 - 90% reduction compared to conventional bouillon cubes, demonstrating a viable, consumer-acceptable, reduced-sodium functional food that remained microbiologically acceptable for up to 18 days under ambient storage Conditions.

**Keywords:** bouillon cube, functional food, postharvest loss, sensory evaluation, sodium reduction, storage stability