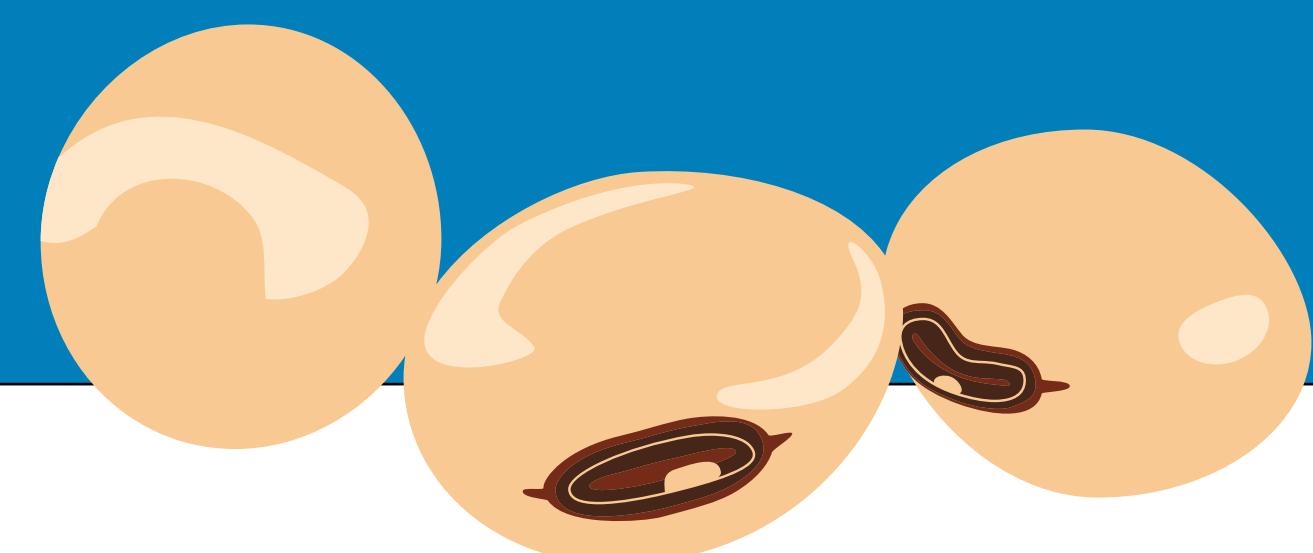


Development of a Nutrient-Dense, Cost-Effective Fermented Nut Spread to Enhance Protein Intake Among Low-Income Populations in Sri Lanka

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BACKGROUND

- Protein deficiency remains a major issue among low-income groups in Sri Lanka.
- Limited dietary diversity and affordability restrict access to nutrient-rich foods.
- Legume-based fermented foods are affordable, local, and nutrient-dense.
- This study developed a low-cost fermented nut spread to improve protein intake.

METHODS

- Formulation: Peanut, Soybean, Velvet bean
40 : 40 : 20
- Fermentation: *L. bulgaricus* and *S. thermophilus*
- Analyses: Proximate, antioxidant (DPPH), sensory, and microbial safety
- Sensory analysis by 5 point hedonic test with untrained panel
- Comparison with commercial peanut butter for nutrition and quality

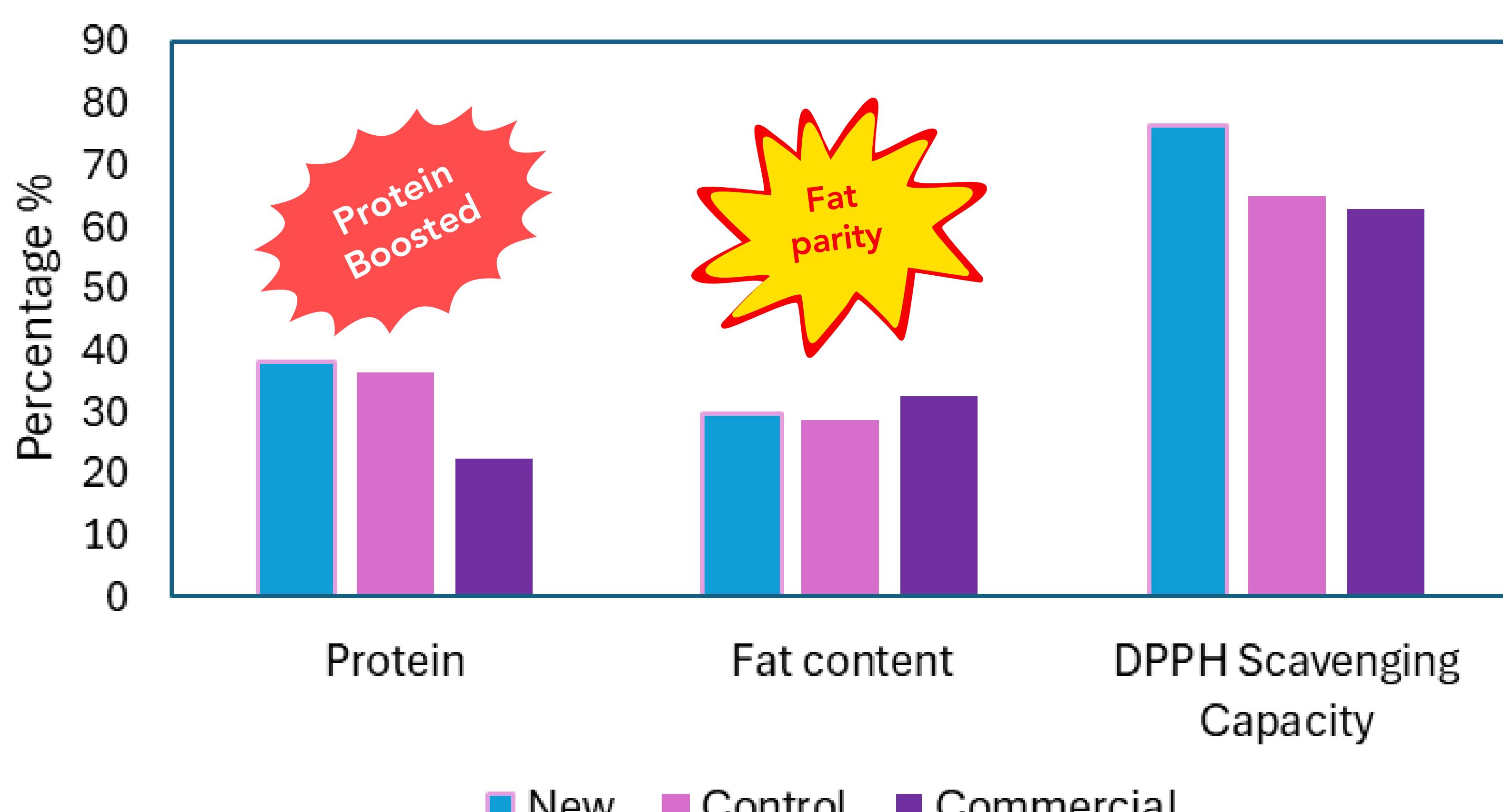
RESULTS

- Protein: 37.98% (higher than control 22.5%)
- Antioxidant activity: 76.50% DPPH
- Fat content: Comparable to peanut butter
- Sensory: Good acceptability (taste, texture, aroma)
- Microbial safety: Confirmed
→ Fermentation improved digestibility and bioactive content.



Control Commercial Peanut Butter New Peanut Butter

Fermentation Effects on Nutritional Quality



COST ANALYSIS

- Velvet bean, though underutilized, is a hardy and low-maintenance crop with strong potential for easy cultivation.
- By incorporating low-cost soybean and reducing the peanut content, the new nut spread can be produced at a significantly lower cost.
- COP - LKR 904.00 per 1 kg of nut spread.

CONCLUSION

- A nutritious, affordable, and scalable legume-based spread was developed.
- Suitable for small-scale enterprises, school feeding, and nutrition programs.
- Supports Sri Lanka's food security and malnutrition reduction goals.
- Further studies: cost-effectiveness, market feasibility, and policy integration.

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