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**Development and functional characterization of oat–lentil nutri-cube products with enhanced protein quality**

*Dezvoltarea și evaluarea proprietăților funcționale ale produselor de tip nutri-cubes formulate din ovăz și linte, cu calitate proteică îmbunătățită*

The growing demand for nutritionally balanced snack products with improved protein quality has stimulated the development of cereal–legume-based formulations. The present study aimed to develop nutri-cubes exclusively based on oat (*Avena sativa* L.) and lentil (*Lens culinaris* L.) blends and to evaluate their nutritional, functional, and sensory characteristics. Different oat–lentil ratios were formulated in order to optimize protein quality and technological performance.

Chemical analysis revealed a protein content ranging between 18.4 and 22.7 g/100 g dry matter, depending on formulation, while total dietary fiber reached values between 9.8 and 12.6 g/100 g. Amino acid profiling demonstrated a significant improvement in lysine content compared to oat-only formulations, confirming the complementary effect between cereal and legume proteins. The essential amino acid index increased proportionally with lentil inclusion, contributing to a more balanced amino acid profile.

Texture profile analysis indicated a compact structure with hardness values between 28.5 and 36.2 N, depending on the blend ratio, while cohesiveness and chewiness parameters confirmed structural stability suitable for snack-type products. Sensory evaluation performed using a 9-point hedonic scale showed good overall acceptability (7.4–8.1), with higher scores recorded for formulations containing moderate lentil levels, where the typical legume flavor was well balanced by

oat-derived sweetness. The obtained results demonstrate that oat–lentil nutri-cubes represent a nutritionally dense snack alternative with improved protein quality, significant fiber content, and satisfactory sensory properties. The study confirms the feasibility of using exclusively cereal–legume blends to develop functional snack products aligned with current trends in sustainable and health-oriented nutrition.

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