Crop Science and Technology: Shaping the Future of Agriculture

International Scientific Conference



BOOK OF ABSTRACTS

September 29 - October 2, 2025 - Belgrade, Serbia

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Maize Research Institute Zemun Polje

Book of abstracts

CROP SCIENCE AND TECHNOLOGY: SHAPING THE FUTURE OF AGRICULTURE

Editors

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Fermentation Potential of Field Pea (*Pisum Sativum*): A Nutritional Perspective

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The aim of this study was to determine the physicochemical properties of five physiologically ripe Pisum sativum (pea) varieties – "Dunav", "Tamiš", "Kelvedon", "Mali Provansalac" and "Čudo Amerike"- in order to evaluate their potential as substrates in the fermentation process. The analysis focused on key nutritional parameters with critical influence in microbial growth, fermentation kinetics, and development of desirable sensory and nutritional profiles in fermented products. Pea seeds, obtained from the Institute of Field and Vegetable Crops in Novi Sad, were milled into fine flour using a laboratory mill and stored at 4°C until analysis. Each variety was analyzed in duplicate, and mean values calculated per dry weight were used for comparison followed by statistical analysis. Standard laboratory methods were employed to quantify macronutrient composition. Results showed considerable variations among the five varieties, with protein content ranging from 21.14% ("Dunav") to 26.81% ("Mali Provansalac") and total sugar content from 1.25% ("Dunav") to 4.20% ("Tamiš"). Beyond simple sugars, total carbohydrate content - including starch and dietary fiber - also varied among the samples. Fat content was relatively low across all samples (1.19% - 1.99%), consistent with typical legume profiles. Based on a comparative assessment, two varieties, one with the highest fermentable sugar content and balanced carbohydrate profile ("Tamiš") and the other with the lowest sugar and comparatively lower protein levels ("Dunav"), were selected for further fermentation trials. Both varieties were selected for additional studies to evaluate how compositional extremes influence microbial activity and product quality in fermentation process.These findings provide a foundation for optimizing legume-based fermentation systems and support the development of sustainable, plant-based fermentation substrates with enhanced nutritional and functional value.

***Keywords**: Pisum sativum; nutritional analysis; protein; sugar; fermentation*

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