

LEGUMES - POTENTIAL SOURCE OF ANIMAL ORIGIN RAW MATERIALS REPLACEMENT

Viorica Bulgaru^{1*}, Mihail Mazur¹, İlkey Şensoy², Valentin Celac³, Liliana Popescu¹, Rodica Sturza¹ Aliona Ghendo-Moşanu¹

¹Technical University of Moldova, 168, Stefan cel Mare bd., MD-2004, Chisinau, Republic of Moldova; ²Middle East Technical University, Ankara, Turkey; ³State University of Moldova, 60, Alexei Mateevici st., MD-2009, Chisinau, Republic of Moldova

*Corresponding author: viorica.bulgaru@tpa.utm.md

Global forecasts of population growth in the near future involved an increase in the food products demand. As food production increases, sustainability issues are expected, particularly in the production of high-quality animal protein. Animal husbandry contributes to the increase in greenhouse gas emissions, and water resources are depleted because of this. Life needs protein; thus, it is obvious the need to use the available food resources as efficiently as possible, and reducing the consumption of animal proteins by replacing them with those of plant origin would be a good solution. Legumes are appreciated in the food industry due to their energy supply, significant intake of proteins, carbohydrates, dietary fibers, minerals that could be a suitable plant source to replace the animal proteins.

The varieties of chickpea and soybean were used for the research. The content of dry matter, proteins, amino acids profile and minerals, mass per 1000 grains, grains hectolitre mass, acidity of dried legumes were determined.

The results obtained, regarding the chemical composition, demonstrated that all the analyzed legume varieties are potential sources of valuable macro and micronutrients. For chickpea and soybean, close values were obtained for the dry matter content.

The soybean varieties presented the highest protein content compared to the chickpea samples. The amino acid profile showed the same trend for all analyzed legumes. Significant amounts were obtained for (in descending order): glutamic acid, aspartic acid, arginine, lysine, leucine, proline. Among the minerals determined in the dry samples, potassium content was the highest, followed by magnesium and calcium content. The lowest content refers to manganese.

The chickpea samples showed a high content of the potassium, manganese and iron. The 1000 grains mass and hectolitre mass showed that legumes were of high quality, well developed, grown in appropriate conditions. The legumes acidity was low, it could be influenced by the amino acid content.

The obtained results demonstrate that the analyzed legumes are rich sources of proteins, essential amino acids and mineral salts, important in human nutrition and can be used as vegetable sources to replace animal origin proteins in food products manufacture intended for different categories of consumers.

Keywords: legumes, soybeans, chickpeas, protein, amino acid's profile

Acknowledgment: Moldovan-Turkish Bilateral Project Sustainable Nutrient-Rich New Generation Food Products Development: evaluating the relationship between ingredients, processing methods used, and techno- and bio-functional properties