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Scientific Conference on Breeding to meet environmental and societal challenges

Abstract e-Book

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Coimbra Portugal

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SEED SIZE AND PROTEIN CONTENT IN DRY GRAINS OF THE FABA BEAN (VICIA FABA L.) LINES OIGINATED FROM SERBIAN LOCAL POPULATIONS

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Abstract Text:

In the past, the faba bean (Vicia faba L.) was an important legume in the Mediterranean diet for both humans and livestock. Today, however, it has largely been forgotten in Serbia. The Serbian Ministry of Agriculture currently recognizes only two commercial varieties of faba bean for animal feed (var. minor). Faba beans intended for human consumption are grown on very small plots of land, primarily for family use. The key factor for the survival of tiny local faba bean populations is the traditional preparation of faba bean tied to Lenten practices observed by Orthodox Christians. During this time, guests are offered a vegan, hummus-style dish made from faba beans. However, this dish is not prepared in all regions of Serbia, or every village. Seeds are infrequently transferred between farmers and are rarely found at the farmer's markets, so it is feasible to believe that faba bean biodiversity in Serbia is high because maybe every farmer, which produces faba bean, has his own population.

The Institute for Forage Crops Kruševac (IKBKS) has launched a research program to collect and evaluate native faba bean populations in Serbia. This collection now has approximately 30 original populations and about 60+ inbreed derived lines. According to preliminary assessments, the grain quality and grain bioactive material content are both a quite high (Milenković et al., 2024, Mitić et al., 2024). In this research, the lines were divided into two groups depending on seed size: major and equine-minor, to evaluate if grain size affects protein content. Because in Serbia the majority of local populations have a major grain size, the lines with equine and minor grain types are joined. The two-year experiment was conducted on the IKBKS plot in two repetitions using a randomized block system. The crude protein content was chemically analyzed using the Kjeldahl method. In this exploratory study, the crude protein content of the dry grain of faba bean lines was investigated in order to choose material for future work on the development of a new high-protein faba bean variety. According to the findings of this study, the protein content of the examined lines ranged between 26-31%, indicating that there is need for future research into the development of high-quality varieties for human or animal consumption.

Low-input agriculture is consistent with sustainable farming goals in Serbia, and it can be especially beneficial for smallholder farmers trying to save costs while minimizing their environmental impact. Collecting and cultivating neglected and old species in conventional and organic agriculture can make a significant contribution to healthy food.

Reference:

Milenković Jasmina, Anđelković Snežana, Petrović Mirjana, Zornić Vladimir (2024): Grain quality of local faba bean populations collected in Serbia. Proceedings of the VII Congress of the Serbian Genetic Society, Zlatibor, Serbia, October 2 to 5, 2024

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