EUROLEGUME 2014-2017

Enhancing of legumes growing in Europe through sustainable cropping for protein supply for food and feed

Research Project № 613781

Bringing local genetic resources into new perspective: case of gray pea of Latvia

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Abstract

Gray pea is a traditional crop in Latvia and has been one of the diet staples among balrey and beans until introduction of the potato in 19th century. Nowadays gray peas are consumed as a classical dish of Latvian cuisine constisting of boiled peas and becon. Despite wide local consumption, research on gray peas has been scarce, they are not fully evaluated phenotypically and genotypically.

Within project EUROLEGUMES (Seventh Research Framework Programme of the European Union - FP7 research project n◦613781) local accessions of pea available across the Europe are being evaluated for different parameters - yield, biotic and abiotic stress resistance, nitrogen fixation (in plants and in soil), and nutritional value across Europe – Greece, Albania, Norway, Portugal, Sweden, Estonia, Latvia.

Characterization of nutritional value, yield resilience and other parametrs has led to identification of gray peas for suitable not only for traditional cuisine but also for feed and food inovative productions – as crispy snacks and organically produced protein powder.

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Objectives of EUROLEGUME project

Objective of the project

The project is aimed at improving the sustainable development of leguminous crops, ensuring new varieties and new food and feed products

Specific objectives

- **Evaluation of field pea, field bean and bean vigna genetic resources**
  - Selection of appropriate rhizobiSourcing and characterization of genetic diversity
  - Phenotyping selected accessions in site specific abiotic and biotic stresses
  - Assessing quality of pea by NIR spectophotometer
  - Evaluation of genetic diversity by molecular methods
- um stains and arbuscular fungi to support nitrogen fixation and development of new, comercial inoculants.
- Development of new food and feed products
- Introduction of legumes (field beans, field pea and cowpea) into production agricultural systems in order to enhance sustainability in those systems
- To give an added-value products (as feed) from legume grain production residues

Partners: 18 partners from 10 EU member states

Traditional use of gray peas- traditional Latvian cousine

Brown marbled seeds of gray pea variety 'Bruno'

Reddish violet flowers of grap pea variety 'Bruno'

For a traditional disg grey peas are are boiled and mixed with bacon bits and onions. Other typical uses include peas added to potato dumplings, nourishing soups and purees.
Dried Latvian grey peas are distinguished from other peas by their especially large, coarse seeds and their good culinary qualities, such as a relatively short boiling time. Though not particularly grey looking, when served on the table the pea has a marbled pattern that gives it a greyish coloration.
While the boiled pea has a soft, floury consistency and a mild yet specific flavor, which comes from the skin.

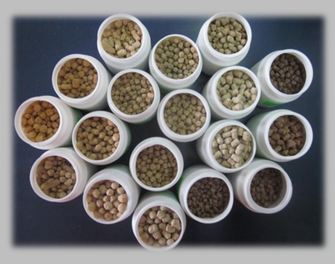
"Latvian Big Grey peas" have been listed in the European Protected Designations of Origin (PDO) list.

Novel use of gray peas after description of genetic resources and identification of best suited genotypes

Feed

The need for alternative protein sources to soybean meal, partially or fully substituted in the diets of dairy cows, is an urgent problem nowadays in farming. Soybean meal is the most common protein source included in concentrated feeds for dairy cows in Latvia and in other European countries as well. The obtained results of biochemical composition tests showed that the varieties and breeding lines of peas grown in Latvia contained the proteins necessary in feed and may be used in cow diets, replacing an equivalent amount of soybean protein. During the trial and lactation, increased milk fat and protein content was obtained by adding 20-24% gray peas variety 'Bruno'.

Novel food products



Extruded snacks (salty and sweet)

Pea spreads

Bars with reduced sugar content and high protein content

Protein powder

High crude protein content 23-25% and suitability to be grown in organic growing conditions have identified variety 'Bruno' suitable for production of protein powder.