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Review article

NEED FOR GENETIC PRESERVATION OF PLANT OF BEANS- Phaseolus vulgaris – IN THE DISTRICT OF KICEVO

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Abstract

During the implementation of this scientific research done collection of different seeds of ten local cultivars of the bean plant- Phaseolus vulgaris where the genetic basis is not the same in the aspect of the degree of genetic reserves.
Local varieties of the plant of beans studied during this scientific research are diploid with several chromosomes 2n = 22, however remote hybridized studies of this plant species have shown that genes are organized in orthogenic sequences which for the local cultivars Ph.vulgaris, Ph.poliynatus, and Ph.coccineus form a singamia.
The genetic resources of the local cultivars of the plant of beans- Phaseolus vulgaris- in this habitat present a source for genetic variations that include genes located in their genotypes. Ten local cultivars collected from farmers of this locality during the research year 2007 have enabled the planting, and retention of some seeds of these local cultivars for a long time, and in this way they enrich the genetic resources, adding genetic variations within the type.
Local varieties of the bean plant - Phaseolus vulgaris during this scientific research in this vital habitat from a phenotypic appearance are very different, i.e., a cultivar with different mixture of genotypes, i.e. a genetically heterogeneous cultivar which means that they contain high levels of variability.

Keywords: variability, local cultivars, hybridization, heterogeneous.

Introduction

The Bean - Phaseolus vulgaris is a very important crop, with a wide geographical spread, and in the Balkans, it can be found in all areas.

One of the most significant characteristics of these local cultivars is the phenomenon of polymorphism by which we mean that according to the morphological appearance, they change very quickly, especially the vegetative parts, the root, the stem, and the leaf, whereas the reproductive organs of these cultivars are more constant or less variable.

In the district of Kicevo, local cultivars of the beans as an agricultural crop are grown traditionally together with plant corn, and rarely on sticks; the seed is shaped in the form of a kidney or pressed, white or other colors, varieties which often resemble "The Tetovo Bean", which is known as Balkan type.

Phaseolus vulgaris- Beans, is an annual self-pollinating autogamous herbaceous plant, genotype 2n = 22 chromosomes, and belongs to the bean or legume plants Fabaceae, subfamilies - Papilonaceae and gender Phaseolus.

In our country, the cultivation of this crop plant has a long tradition of time, especially for those individuals who cultivate it for their own needs and thus enable the preservation of the genetic diversity of these local breeds, through many decades. (Ivanoska and Popsimeonova, 2006).

Materials and methods for experimental work

According to recent research on the genetic resources of the bean plant means that: **whoever owns sufficient genetic resources of this plant, then he can solve the problem either for the food,** or the **genetic improvement of these local cultivars** which means that such regions that cultivate these cultivars possess **genes (germplasm)** of these cultivars.

In the future, while using classical methods for investigating the genetic resources of these cultivars and modern methods such as the techniques of molecular genetics and genetic engineering provide finding solutions within the genetic resources of these cultivars of the beans plant in these living localities, either to increase productivity or the quality of seeds.

Based on this, we can conclude that the genetic success of these local cultivars depends on the diversity of genes or the variety of genetic bases - enabling genetic biodiversity.

In reality, genetic biodiversity can be defined as a set of genes within the organisms of its type, mainly in this case for local cultivars that have been explored within this research, or as we can call it differently genetic biodiversity within local cultivars adjusted in these ecosystems.

To achieve these goals, all local cultivars of the bean plant-***Phaseolus vulgaris***, are picked by the farmers of **Kicevo**, who otherwise are known as cultivars of this locality which have been created for a long period through natural selection or through human choice which may have been unconscious.

Based on this we can conclude that these local cultivars of the bean plants are genetically very heterogeneous because their successor material carries significant genetic variations.

Morph anatomic characteristics of these cultivars are described as they are being delivered by farmers, and based on these properties we can form their data files which can be noted below and be stored at the genetic banks for these plant species.

1. The local bean cultivar of Tetovo

Location: village Forina

Cultivation time: over 20 years by the same farmer,

Planting: along with the corn plant,

Morphological characteristics: high habitus, large number of flowers, large number of pods and large number of seeds in beans,

Productivity: based on the properties of morphological reproductive bodies this cultivar gives high productivity,

The color and shape of the seeds, the seeds have bright color and kidney shape like the Tetovo beans,

Taste of seeds for food: very tasty.

Seeds and legumes of the local bean cultivar of Tetovo

2. The local bean cultivar of the 'Cincares' beans
Location: village Bigor Dolenca
Cultivation time: over 50 years by the same farmer,
Planting: along with the corn plant,
Morphological characteristics: high habitus, large number of flowers, large number of bean pods and large number of seeds in the bean plant,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives high productivity,
Color and shape of the seeds, the seeds have bright color and kidney shape like the Tetovo beans,
Taste of seeds for food: very tasty.

Seeds and legumes of the local bean cultivar of the Cincares beans

3. The local cultivar of dappled round beans
Location: village Tuhin
Cultivation time: over 30 years by the same farmer,
Planting: along with the corn plant,
Morphological characteristics: high habitus, a large number of flowers, but the flowers are red, a large number of pods and a large number of seeds in beans but they have a dappled seeds,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives high productivity,
Color and shape of the seeds, the seeds have dappled color and round shape,
Taste of seeds for food: very tasty.

Seeds and legumes of local cultivars of the dappled round beans

4. The local bean cultivar of the small beans
Location: village Baçishta
Cultivation time: over 60 years by the same farmer and I have inherited it from my parents,
Planting: along with the corn plant,
Morphological characteristics: high habitus, a large number of flowers, a large number of pods and a large number of seeds in beans but with small seeds,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives high productivity,
The color and shape of the seeds, the seeds have bright color and round pressed shape,
Taste of seeds for food: tasty.

Seeds and legumes of local cultivars of the small beans

5. The local cultivar of the pressed seed bean from the village of Zajaz
Location: village Zajas
Cultivation time: over 40 years by the same farmer,
Planting: along with the corn plant,
Morphological characteristics: high habitus, a large number of flowers, a large number of pods and a large number of seeds in beans,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives high productivity,
The color and shape of the seeds, the seeds have bright color and kidney shape like the Tetovo beans,
Taste of seeds for food: very tasty.

Seeds and legumes of local cultivars of the pressed bean seeds from the village Zajaz

6. The local cultivar of dappled pressed bean seeds
Residence: village Bigor Dolenci
Cultivation time: over 30 years by the same farmer,
Planting: along with the corn plant,
Morphological characteristics: high habitus, a large number of flowers, a great number of beans seeds and a great number of seeds in beans,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives high productivity,
The color and shape of the seeds, the seeds are dark-colored and shaped like kidney beans of Tetovo,
Taste of seeds for food: very tasty.

Seeds and legumes of local cultivars of the local dappled pressed bean seeds

7. The local cultivar of the round bean seed
Location: village Reçan
Cultivation time: over 20 years by the same farmer,
Planting: together with plant corn but my great height marine
Morphological characteristics: low habitus, a small number of flowers, a small number of legumes and a small number of seeds in beans,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives low productivity,
Color and shape of the seeds, the seeds have bright color and round form,
Taste of seeds for food: tasty.

Seeds and legumes of local cultivars of the local round bean seed

8. The local cultivar of pressed bean seeds of the village Tuhin
Location: village Tuhin
Cultivation time: all the time,
Planting: along with the corn plant,
Morphological characteristics: high habitus, a large number of flowers, a large number of pods and a large number of seeds in beans,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives average productivity,
Color and shape of the seeds, seeds have bright color and shape like kidney beans of Tetovo
Taste of seeds for food: very tasty.

Seeds and legumes of local cultivars of the local pressed bean seeds of the village Tuhin

9. The local cultivar of pressed bean seeds with brown and black color
Residence: village Bigor Dolenci
Cultivation time: over 30 years by the same farmer,
Planting: along with the corn plant,
Morphological characteristics: high habitus, a large number of flowers, a large number of pods and a large number of seeds in beans,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives high productivity,
The color and shape of the seeds, the seeds have bright color and kidney shape like the Tetovo beans,
Taste of seeds for food: very tasty.

Cultivar seeds and legumes of local cultivars of pressed bean seeds with brown and black colour

10. The local cultivar of bean-pressed seeds from Kicevo.
Location: Kicevo
Cultivation time: over 50 years by the same farmer,
Planting: along with the corn plant,
Morphological characteristics: high habitus, a large number of flowers, a large number of pod and a large number of seeds in beans,
Productivity: based on the properties of morphological reproductive bodies this cultivar gives average productivity,
Color and shape of the seeds, the seeds have bright color and kidney shape like the Tetovo beans,
Taste of seeds for food: very tasty.

Local cultivar seeds and legumes of pressed beans from Kicevo.

The importance of genetic resources for these local cultivars

The genetic resources of these local cultivars contain a large number of them in the agricultural ecosystems, and in the future, they can solve many scientific problems, especially in their genetic improvement, and adaptability towards ecological factors in these vital locations which means that they enable regionalization in these ecosystems and what is most important for the country population is to increase productivity.

Based on these data we can conclude that genetic variations are not formed in a moment, but as a result of a long process of evolution that continues without interruption even today.

In reality, the genetic evolution of these cultivars enables them to substitute properties with new properties, a phenomenon provided through the genetic transformation tool or during the process of substitution of allele genes with other locuses.

The importance of genetic resources for these local cultivars is fighting against extinction and strategies for their preservation, to preserve their importance not only for the current time but also for future generations.

Preserving genetic resources of plants, and also of these local cultivars is done through gene banks, botanical gardens, research and inquiry institutes, and other places, places that have to be applied for these cultivars so that we could have them in use even in the next generations.

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