COLLECTION OF GRAIN LEGUMES IN THE REPUBLIC OF SRPSKA, B&H

Asst. Prof. Marina Antić
Director
Institute of Genetic Resources
University of Banja Luka

ForEVA – Fostering the need of implementation of the ECPGR’s European Evaluation Network (EVA) on Grain legumes

10-11 October 2023, Bucharest, Romania
Institute of genetic resources, University of Banja Luka

• established in 2009 as a part of University of Banja Luka
• consists of two sub-organizational units:
  1. Center for Biodiversity
  2. Center for sustainable use of genetic resources
Center for Biodiversity

- activities related to basic, developmental and applied research

Plant Gene Bank of the Republic of Srpska:
1. seed collections
2. fruit field collections,
3. in vitro collection
4. arboretum,
5. botanical garden,
6. gene library.
Center for sustainable use of genetic resources

1. department for consulting and provision of services
2. department for production and trade of agricultural and forest plant material
Protected area „University city“
Category VI – Protected Area with sustainable use of natural resources

- total area: 27.3 ha
- declared in 2012
- key natural values: Platanus alley, river Vrbas coast, natural monuments, ornithofauna, botanical garden with arboretum
Collection of grain legumes at the Gene Bank of the Republic of Srpska

- 170 accessions of *Phaseolus vulgaris* L.

- 14 accessions of *Phaseolus coccineus* L.

- 10 accessions of *Lathyrus sativus* L.
Project: Grain Legumes Genetic Resources and their Importance for Human Consumption and Sustainable Agriculture (2016-2018)

• expedition in the area of Romania and collecting 7 new accessions of *Phaseolus coccineus*

• morphological characterization and multiplication of new accessions

• molecular characterization of 70 accessions of *Phaseolus vulgaris* and 11 accessions of *Phaseolus coccineus*

• implementation of the SMARTLEG project - " Efficient management of resources for smart legumes utilization"
References


Project: Genetic diversity of wetch species (Lathyrus sp.) – genetic resources to revitalize underutilized crop (2019-2021)

• expedition in the area of Trebinje and collecting 3 new accessions of *Lathyrus sativus*
• morphological characterization and multiplication of the collected accessions
• molecular characterization
• the realization of this project was the basis for the application to the EPCGR project "Lathyrus diversity: available resources with relevance to crop improvement – progress reviews and relationship with AEGIS".
References


Phaseolus vulgaris catalogue

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Min</th>
<th>Max</th>
<th>Av</th>
<th>SD</th>
<th>CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed length (mm)</td>
<td>9,50</td>
<td>18,06</td>
<td>13,90</td>
<td>1,45</td>
<td>10,44</td>
</tr>
<tr>
<td>Seed thickness (mm)</td>
<td>4,17</td>
<td>8,13</td>
<td>5,98</td>
<td>0,80</td>
<td>13,37</td>
</tr>
<tr>
<td>Seed width (mm)</td>
<td>5,31</td>
<td>10,92</td>
<td>7,88</td>
<td>0,89</td>
<td>11,25</td>
</tr>
<tr>
<td>100 seed weight (g)</td>
<td>15,44</td>
<td>73,72</td>
<td>41,48</td>
<td>10,80</td>
<td>26,04</td>
</tr>
</tbody>
</table>

**Seed shape distribution**

- Oval/Oval: 101
- Kuboidni/Cuboid: 32
- Bulbcesto/Kidney shaped: 18
- Zarnibjeno/Truncate: 10

**Primary seed color**

- Bijela White: 47
- Zebra Green: 30
- Siva Grey: 1
- Zelena Yellow: 7
- Ribižnje: 30
- Smeđa Brown: 4
- Ljubicasta Violet: 10
- Crvena/Red: 115
- One color: 36
- Two colors: 115

---

*For EVA*
**Phaseolus coccineus catalogue**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Min</th>
<th>Max</th>
<th>Av</th>
<th>SD</th>
<th>CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed length (mm)</td>
<td>17,80</td>
<td>22,24</td>
<td>20,45</td>
<td>1,19</td>
<td>5,81</td>
</tr>
<tr>
<td>Seed thickness (mm)</td>
<td>6,09</td>
<td>9,53</td>
<td>8,65</td>
<td>0,84</td>
<td>9,72</td>
</tr>
<tr>
<td>Seed width (mm)</td>
<td>9,57</td>
<td>14,19</td>
<td>12,85</td>
<td>1,18</td>
<td>9,20</td>
</tr>
<tr>
<td>10 seed weight (g)</td>
<td>5,89</td>
<td>16,17</td>
<td>13,06</td>
<td>2,67</td>
<td>20,47</td>
</tr>
</tbody>
</table>

**Oblik sjemena/Seed shape**
- Ovalno/Oval: 5
- Kuboidno/Cuboid: 9

**Primarna boja sjemena/Primary seed color**
- Bijela/White: 7
- Smeđa/Brown: 2
- Ljubičasta/Violet: 1
- Crna/Black: 4

**Broj boja sjemena/Number of seed colors**
- Jedna/One: 7
- Dvije/Two: 7
Lathyrus sativus catalogue

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Min</th>
<th>Max</th>
<th>Av</th>
<th>SD</th>
<th>CV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seed length (mm)</td>
<td>9,05</td>
<td>10,57</td>
<td>9,64</td>
<td>0,43</td>
<td>4,48</td>
</tr>
<tr>
<td>Seed thickness (mm)</td>
<td>4,77</td>
<td>6,04</td>
<td>5,46</td>
<td>0,40</td>
<td>7,34</td>
</tr>
<tr>
<td>Seed width (mm)</td>
<td>9,00</td>
<td>11,30</td>
<td>10,02</td>
<td>0,67</td>
<td>6,68</td>
</tr>
<tr>
<td>10 seed weight (g)</td>
<td>19,70</td>
<td>32,86</td>
<td>25,99</td>
<td>3,88</td>
<td>14,92</td>
</tr>
</tbody>
</table>

Oblik sjemena/Seed shape

Primarna boja sjemena/Primary seed color

Broj boja sjemena/Number of seed colors
Expectations from EVA legumes
[feel free to adjust title]

- Evaluation of material with established conditions of operation
- Enhance the conservation, access and use of grain legume genetic resources