

## ***OIL CROP COLLECTION***

The oil collections are represented by good diversity of families, species and accessions. The base collections include 2600 simples - 1434 *Linum* sp., 530 – *Heliantus annuus*, 400 - *Brassica napus var.oliefera* and 134 - from *Camelina sativa*, *Lalemantia iberica*, *Madia sativa*, *Cartamus lanatus*, *Crambe* sp., *Eruca sativa*.

The biggest variability of species possess the *Brassicaceae* family: *Brassica* -5 species; *Raphanus* -3; *Erysimum* – 10; *Camelina* – 3; *Crambe* – 2.

They are in the breeding program for sunflower in Dobrudja Agricultural Research Institute. IPGR and this research center work together and they maintain *ex situ* collection of sunflower wild relatives /24 species /.

The main activities during last 5 years are:

- 1.Characterization of the *Linum* accessions
  2. Enlargement of the genetic basis with wild relatives
  3. Introduction of the new germ - plasma from *Brassica napus oliefera*
- The financial support for flax complete characteristic was provided by ECP/GR program with small project. Except for the morphological and biological characters there was made biochemical indices: protein, oil, cellulose, ash for 300 accessions.

Some wild species of the genera *Brassicaceae* and *Asteraceae* are a subject of scientificall studies, because of the high quality of their oils. Their economical significance, based on the high quantity of oil and protein, requires the performing of systematic and wide study. That is why on parts of the samples, taken from their natural growing conditions or parted from the established collections, the content of protein, oil and amino-acids have been studied.

The observed lower quality characteristics in some wild species, included in the *ex situ* collections, requires that studies on such species should be carried out in their natural habitats. – *in situ*

Recently, an increasing interest of plant breeders in wild oil-bearing species has been observed, especially in terms of their higher adaptability /stress resistance to abiotic and biotic factors/ in the environmental conditions. Frequently, the direct use of wild oil-bearing species is connected with the obtaining of various valuable products used by tradition or as a modern partial attitude to nature.

Most 50 genera and over 150 species were described from the *Brassicaceae* family in Bulgarian flora. Here belong the most studied and used species determined on the basis of their frequency distribution in nature, as well as on their economic importance: *Brassica napus*, *Brassica nigra*. *Camelina sativa*, *Sinapis alba*, *Eruca vesicaria ssp.sativa* . The two species from *Asteraceae* family *Carthamus tinctorius*, u *Silybum marianum* represent also an interest .

According to the Convention on Biodiversity Conservation, expedition mission was carried out with the participation of scientists, botanists from Bulgarian Research Centers and NGOs for protection of the nature /national and international projects/

The objectives was:

- to pick out ecotypes and wild species from diverse regions of Bulgaria
- to identify sites for *in situ* conservation

On the investigated 11 floristic regions, a significant diversity of wild oil species was registered in: South- Eastern Rhodopi; Osogovska and Rila Mountains; Golo Bardo, Black Sea region, Western and Central Balkan. Consecutive studies were conducted to a different extent on about 84 species of 30 botanical families of wild oil plants. Greater specific diversities were established in the genera: *Linum sp.*, *Brassica sp.*, *Raphanus raphanistrum*, *Camelina*, *Sinapis sp.* Some of the species, such as *Crambe maritima*, *Cr. tataria*, *Linum thracium*, *L. rhodopeum* are highly threatened with extinction. Others - *Carthamus lanatus*, *Eruca sativa*, *Linum tauricum ssp. bulgaricum* / Balkan endemic/having had high populations in the past 1994/97, are now /2004/05 strongly limited as population within their natural area of distribution. On the basis of the study made and in conformity with the main criteria for density, plasticity and value (agro-biological, genetic), and degree of endangering, natural habitats for *in situ* conservation of wild oil bearing species were marked. In this respect, the following species were determined as valuable and suitable for *in situ* conservation. There was included over 28 species of the genera *Brassica*: *Br. rapa*; *Br. nigra*; *Camelina sativa*; *Eruca sativa*, *Erysimum pannonicum*, *E. diffusum*, - South Eastern Rhodopi. In the region of the "National park" in Central Balkan, 9 species of fam. : *Linaceae* and other 15 species was established were marked. The greatest diversity of wild oil-bearing species in the country was found along the North- and South Black Sea - "Kaliakra" and "Ropotamo" Reserves, the Strandza Black Sea coast also. Significant part of the species and some endemics were concentrated in South Pirine and Slavjanka mountains. Micro-regions with great specific diversities and suitable for *in situ* conservation were determined in the Western Balkan Mountain (the region of Belogradchik and Tchiprovci). In result of the *ex situ* investigations of the collected samples, some new wild species were established, being a valuable genetic material for plant breeding or suitable to be directly used for rehabilitate of eroded saline soils. Especially important in this respect are the species: *Carthamus tinctorius*, *Carth. Lanatus*, *Camelina sativa*, *Brassica juncea*, *Arctim lapa*. An obvious threat of extinction and decrease in the genetic diversity (registered in dynamics) was established in the lowland regions of the country and a comparatively better state in the hilly or highland parts of the Tundza plain and the South Eastern Rhodopes where the human intervention was less expressed. A greater specific diversity (*Apiaceae*, *Brassicaceae*, *Lamiaceae*)

impacted by the Mediterranean climatic factor, was registered in the regions with altitudes of 200 to 600 m.

As a result of systematic expeditions in major floristic region of the country Central and Eastern Rhodopi, Central Balkan, Strandja mountain, the cost of Black Sea 9 species of flax / *Linum bienne*, *L.austriacum*, *L.tauricum*, *L.tenuifolium*, *L.flavum*, *L.thracicum*, *L. nervosum*, *L.catharticum*, *L.hirsutum*/ were identified but only 3 collected /*Linum bienne*, *L.hirsutum*, *L.flavum*/. This species characterize with great plasticity and are spread in region with altitude from 0 to 1700 m / above sea level/. The species *L. catharticum* was described in the part from 200 to 260 m. *L.bienne* has very high diversity of plants and forms from 80 to 700m. In the region of the reserve of Kaliakra enormous population with other steppe species in the habitat was marked. Similar populations were found in the Eastern and Central Rhodopi mountains. The habitats of *L.austriacum* in Dobrudja and Sea cost are more limited and localized mainly in different spots. *Linum thracicum* and *L.rhodopeum*, are highly threatened with /Balkan endemic/ extinction. *Linum tauricum spp bulgaricum* /Balkan endemic/ having had big populations in the past now are strongly limited within their natural area of distribution.

### **Conclusion:**

Bulgaria's flora is endangered by the increasing disappearance of nature habitats through urbanization, road construction, tourism and modern farm practices. The important task of the BGB is to rescue the CWR, endangered PGR and local crops still existing in the country.