



# Nature Research Centre

**The activity is supported by EU Lifelong Learning Programme administrated by Lithuanian national agency of Education Exchanges Support Foundation**

# The Institute of Botany, a State Research Institute established in 1959



The Institute conducts scientific studies in botany, mycology, virology, phytopathology, phytosociology, vegetation science and vegetation mapping, plant physiology and genetics

# Laboratory of Economic Botany

Evaluation and conservation on indigenous genetic resources of medicinal and aromatic plants and small berries.



# Medicinal plants

The Lithuanian flora contains 1334 plant species.

There are more than 460 species, which are used in folk and traditional medicine in Lithuania.

33 species of medicinal plants are included in the Red Data Book of Lithuania.



The gathering of wild plant species and their resources are regulated by Law on Wild Vegetation and Law on Protected Areas with supplementary legal acts.



St. John day holiday (24 th June)

The first factory of processing medicinal plants was opened in Švenčionys in 1883.



# *In situ* conservation and investigation

Target species selected on the basis of social-economical and scientific values are the following:

*Achillea* spp.,  
*Acorus calamus* L.,  
*Arnica montana* L.,  
*Allium* (7 species),  
*Origanum vulgare* L.,  
*Thymus* spp.,  
*Hypericum* spp.,  
*Helichrysum arenarium* (L.) Moench.,  
*Salvia pratensis* L.,  
*Vaccinium* spp.

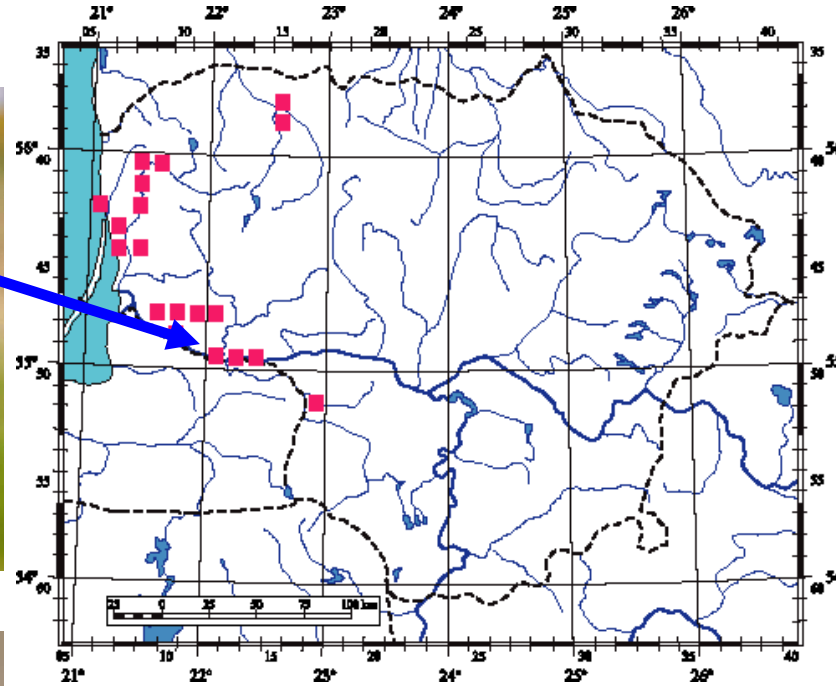


Several areas for *in situ* conservation of medicinal plants and small fruits and berries in Lithuania have been selected.

# In situ

*Allium* ssp. (7 species)

*Allium scorodoprasum*



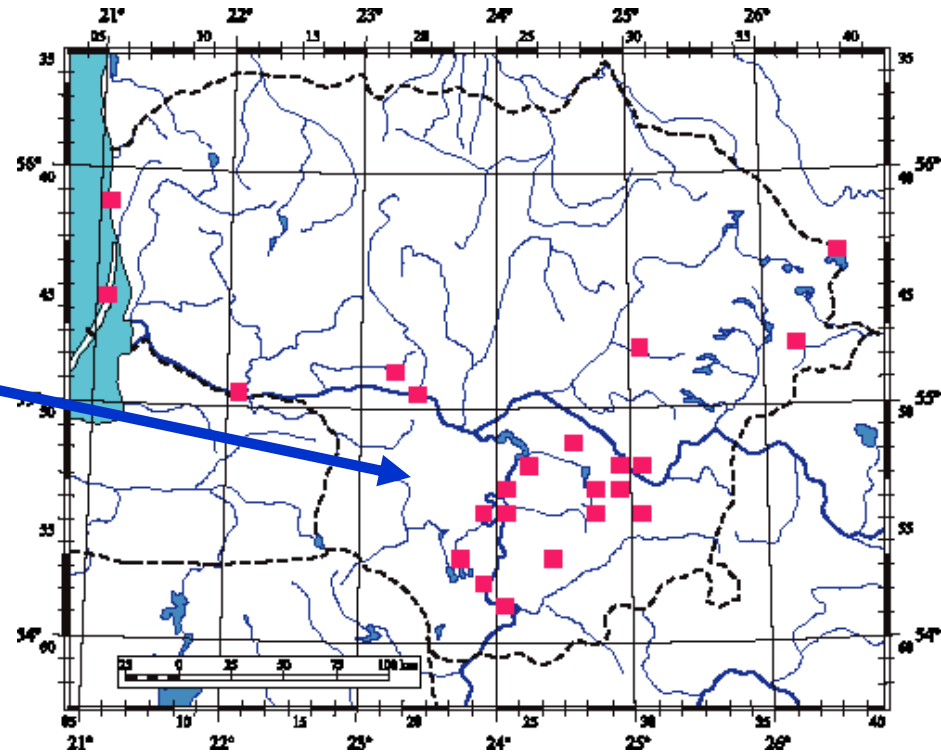
*Allium schoenoprasum*



*Allium oleraceum*



*A. vineale*



*A. angulosum*



*A. ursinum*

# *In situ*



***Ex situ***: field collections (over 140 species, 600 acces.)  
and long-term seed storage in Plant Gene Bank



# Target species (*ex situ*)



*Allium ssp.*



*Arnica montana*



*Acorus calamus*



*Achillea ssp.*



*Humulus lupulus*



*Helichrysum arenarium*



*Thymus ssp.*



*Origanum vulgare*



*Hypericum ssp.*

# Morphological variation of *Helichrysum arenarium*



*Allium angulosum*



*B. Karpavičienės nuotr.*





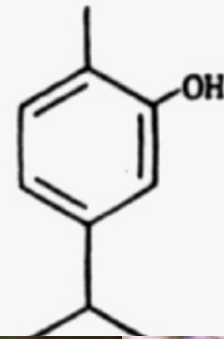
*Salvia pratensis*



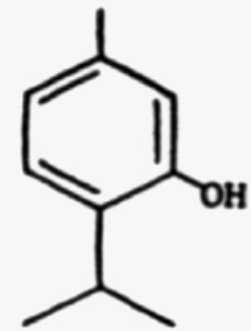
*S. pratensis f. rubicunda*

# Phytochemical assay on bioactive compounds of essential oils (GC/MS)

Carvacrol



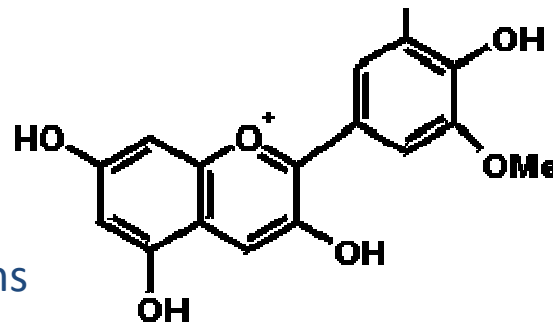
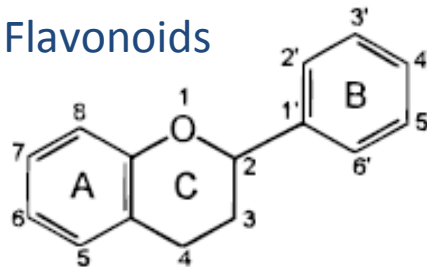
Thymol



# Phytochemical assay on bioactive phenolic compounds (HPLC)



Flavonoids



Antocianins



# Conclusions

- It is used some different possibilities to avoid potential danger and existing threats to MAP species, including *in situ* and *ex situ* conservation.
- The germplasm conservation is carried out jointly with the research.
- The germplasm diversity may be a potential source of genetic variation to allow selecting the valuable material for further breeding.









**Thank you for your  
attention**