



MILJAN CVETKOVIĆ

in cooperation with

GORDANA ĐURIĆ AND PAKEZA DRKENDA

FRUIT PRODUCTION SECTOR IN BOSNIA AND HERZEGOVINA

COUNTRY REPORT

Institute of Horticulture

Institute of Horticulture has the longest tradition at the Faculty of Agriculture, University of Banja Luka. Specifically, the Institute began its activity as **Institute for Fruit Growing, Viticulture and Horticulture**, established by the Council of the Faculty of Agriculture in Banja Luka, on 21st of April, 2003.

The Institute was re-registered on 13th of May, 2014 under new, current name as the Institute of Horticulture, in the Register of the Scientific and Research Institutions of the Ministry of Science and Technology of the Republic of Srpska.

Within the Institute, there are 16 researchers (3 Full Professors, 5 Associate Professors, 5 Assistant Professors, 5 Masters of Sciences and 1 Agricultural Engineer), 1 Professional Associate and 4 Lab Operators performing their research activities.

Institute Laboratories

Laboratory for certification of planting material



The Laboratory for certification of planting material and horticultural plants consists of five Departments arranged in four separate laboratories, a glasshouse and two plastic greenhouses.

Department for Production of Planting Material and Nursery Plants



Within Department for production of planting material and nursery plants there is a glasshouse, which covers an area of 340 m², and two plastic greenhouses of 100 m² each. The main purpose of the construction of glasshouse and plastic greenhouses was to make a complete production system of certified pre-basic and basic planting material and horticultural plants seedlings.

Department for in vitro Culture

The Laboratory performs reproduction of plant material using in vitro culture. Of particular importance in the laboratory research is related to the determination of the method of micropropagation of new genotypes



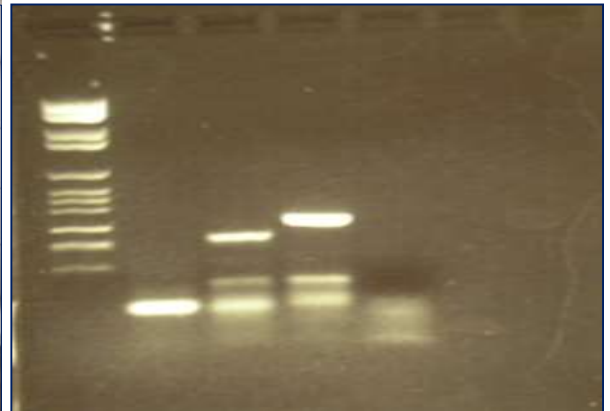
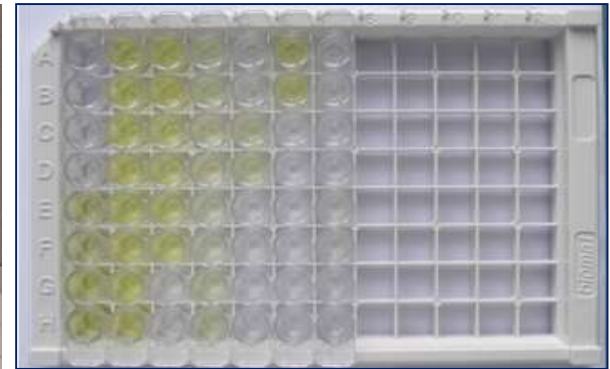
Department for Horticultural Material Processing

In this department we carry out preparatory works for introduction of plants into the *in vitro* culture, which include surface sterilization of plant material, preparation of solutions and media (substrate), autoclaving of media (substrate), washing and sterilizing of dishes.



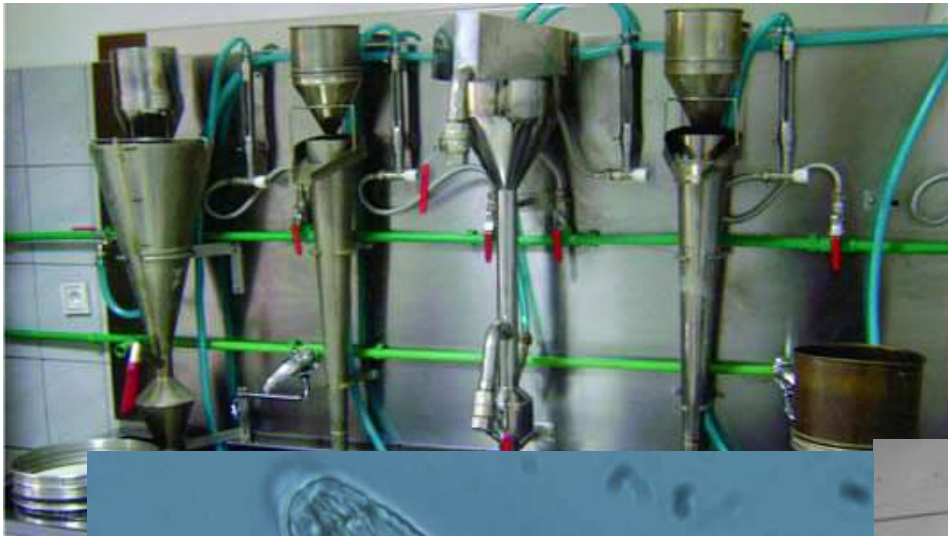
Department of Phytopathology

In the laboratory, we carry out scientific research and offer services in the field of pests diagnostics. Services are directed towards producers, nurserymen, Republican Inspectorate, the Ministry of Agriculture, Forestry and Water Management of the Republic of Srpska and BiH Directorate for Plants Health Protection.



Department of Nematology

The principal activities of this department are related to scientific research and services in the field of diagnostics of phytoparasitic and entomopathogenic nematodes. Diagnostics of phytoparasitic nematodes includes the research and services based on identification of phytoparasitic nematodes using recognized morphological and molecular methods, determination of resistance to nematodes and determination of the efficiency of biological agents in phytoparasitic nematodes control.



Laboratory for Histology and Cytogenetic



The basic research program of the laboratory includes cytogenetic and cytohistologic aspects of embryology in formation and realization of genetic potential of agricultural plants, as well as cyto-histological aspects of sustainability of fruits after harvest and during storage

Laboratory for Microscopy



Laboratory for Pomology and Biotechnology in Horticulture



Laboratory for pomology and biotechnology in horticulture deals mostly with morphological, physiological and biotechnological characteristics of fruits, in view of their varietal (genotype) characterization and economic and biological standardization.



Laboratory for Ampelography and Enology



The laboratory is equipped to perform a large number of analyses in the field of viticulture and winemaking, some of which should be noted: determination and description of vine varieties, checking of grape chemical composition, checking of grape mechanical composition, timing of harvest, checking of the condition of buds fertility, giving recommendations for vines pruning, etc.

Laboratory for Treatment of Fruits after Harvest

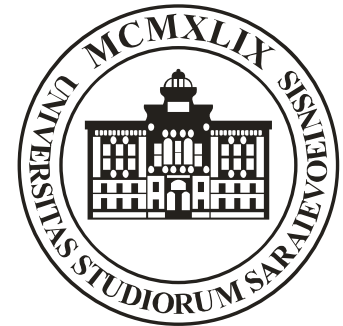


The basic research program of the Laboratory for the post harvest treatment of fruits includes the study of the sustainability of the fruit after harvest and during storage, till its usage.

Research of special interest includes studying of anatomical and morphological predispositions of fruits towards controlled storage conditions.

Faculty of Agriculture and Food Sciences of University Sarajevo

- **77 years since establishment**
- **110 employees**
- **75 teaching staff**
- **40 professors**
- **35 assistants**
- **4 Departments**
 - **Dept: Plant production**
 - **Dept: Zootechnics**
 - **Dept: Economics of Agriculture and Food Industry**
 - **Dept: Food Technology**





Institute for Fruitgrowing and Viticulture

- Chair Fruit growing
 - 2 full professors
 - 1 associate professor
 - 1 assistant
- Chair Viticulture
 - 1 docent
- Chair Ornamental plants and landscape designee
 - 11 associate professor
- Chair Plant Breeding
 - 1 full professor
 - 1 associate professor



Faculty of Agricultural and Food Sciences - Intl. Cooperation...





Faculty of Agricultural and Food Sciences - International Projects

- EU PHARE
- SIDA- Sweden (SEEDNET)

- HERD/Agriculture – Norway

- DEZA – Switzerland - GTZ - Germany

- TEMPUS, - FP6/FP7,

- FAO - IPA

- COST

University of Banja Luka Institute of Genetic Resources

The Institute was established in accordance with the Guidelines provided in the Programme for Conservation of Plant Genetic Resources in the Republic of Srpska, adopted by the National Assembly of the Republic of Srpska (Decision No. 01-936/09 dated 10 June 2008, Official Gazette of the Republic of Srpska, No.59/08).





Activities

- Implementation of the Program for conservation and sustainable use of plant genetic resources in Republic of Srpska (adopted in National Assembly of the Republic of Srpska in 2008 - Official gazette number 59/08).
- Managing with Botanical garden of University of Banja Luka and with Protected area "Park architecture monument University City"



University of Banja Luka

Institute of Genetic Resources

The Institute of Genetic Resources was founded in 2009 and consists two organizational sub-units:

1. Centre for Biodiversity - is in charge of the activities directed towards basic and applied researches.
2. Centre for Sustainable Use of Genetic Resources - is responsible for the activities directed towards technological progress, innovation, regional and the overall socio-economic sustainable development and the application of scientific and professional results in the practice.

Center for Biodiversity Plant Gene Bank

- As a part of the Centre for Biodiversity there is the Plant Gene Bank of the Republic of Srpska with seed collection and field collection.
- Currently, in long-term storage is placed about 1000 accessions. Seed gene bank collections are regularly enriched with new samples.



Center for Biodiversity - Field collection

In this collection there is 98 varieties of apples, 75 varieties of pears, 6 varieties of plums and 6 varieties of cherries.



Field collection in Botanical garden University of Banja Luka

Center for Biodiversity - Field collection

In this collection there is 26 varieties of apple and 15 varieties of pear



Field collection in Municipality of Čajniče

Collection of grape vines in the Municipality Trebinje





Nursery of the Institute





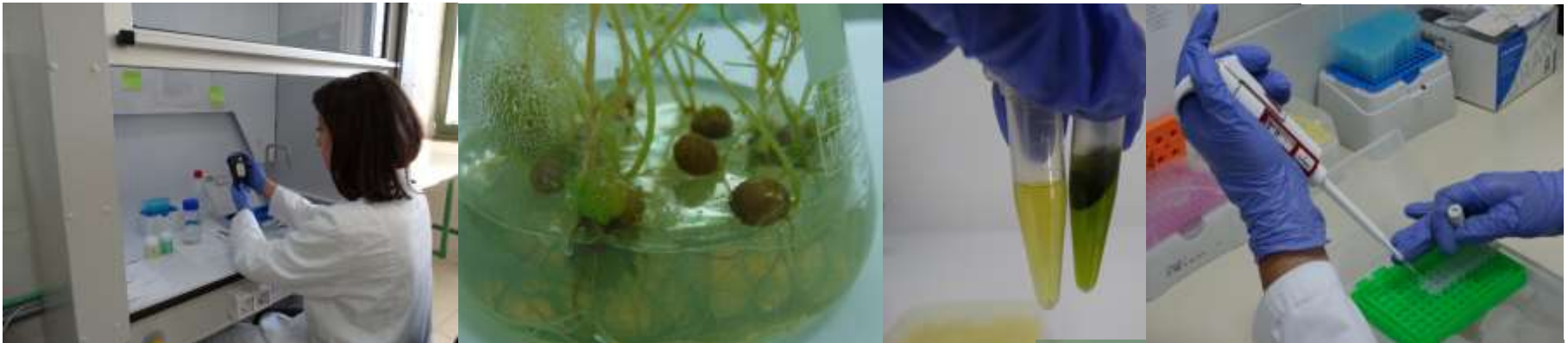
Insect screen greenhouse

16 accessions of pear and 37 accessions of apple (virus and quarantine phytoplasmas free) are isolated in the insect screen greenhouse



Laboratory complex

1. *In vitro* laboratory;
2. Laboratory for seed preparation;
3. Laboratory for microscopy;
4. Laboratory for biotechnology;
5. Laboratory for molecular biology;
6. Laboratory for sterilization.





Centre for Sustainable Use of Genetic Resources

Protected area "Park architecture monument University City"

- The "University City" complex of the University of Banja Luka, occupies a total area of 28 hectares.
- Protected area with sustainable use of natural resources, according to IUCN international categorization, this area is classified as VI category.
- Dendrofond with around 150 species of woody plants, and around 2500 trees and bushes.

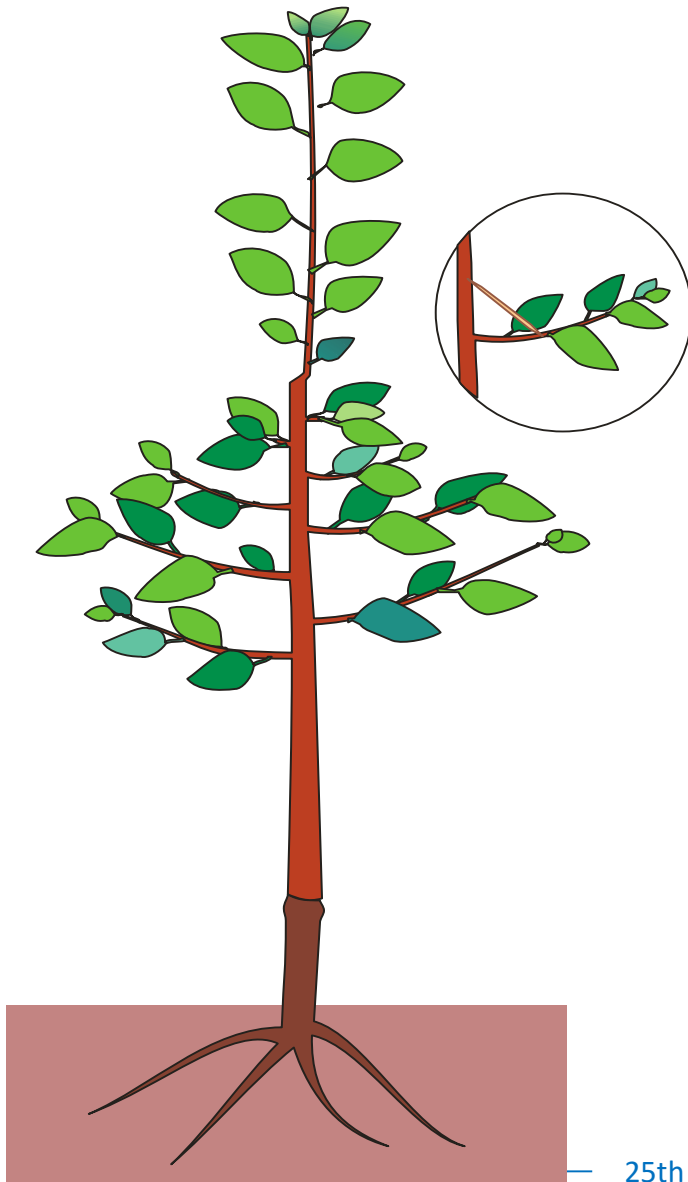


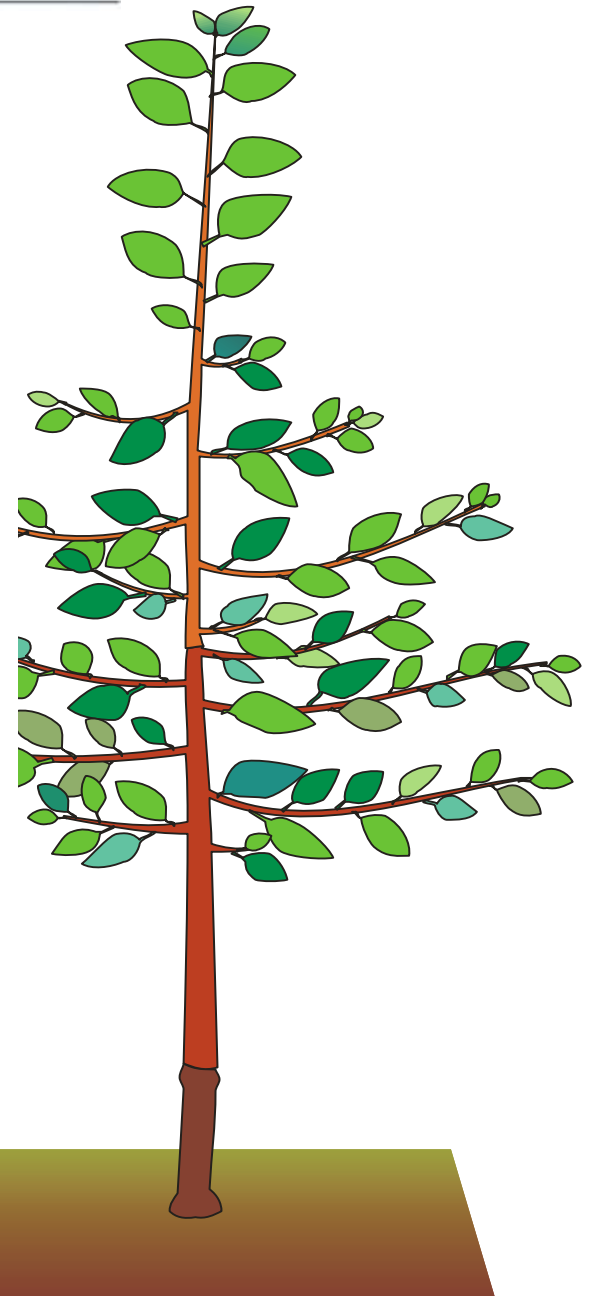
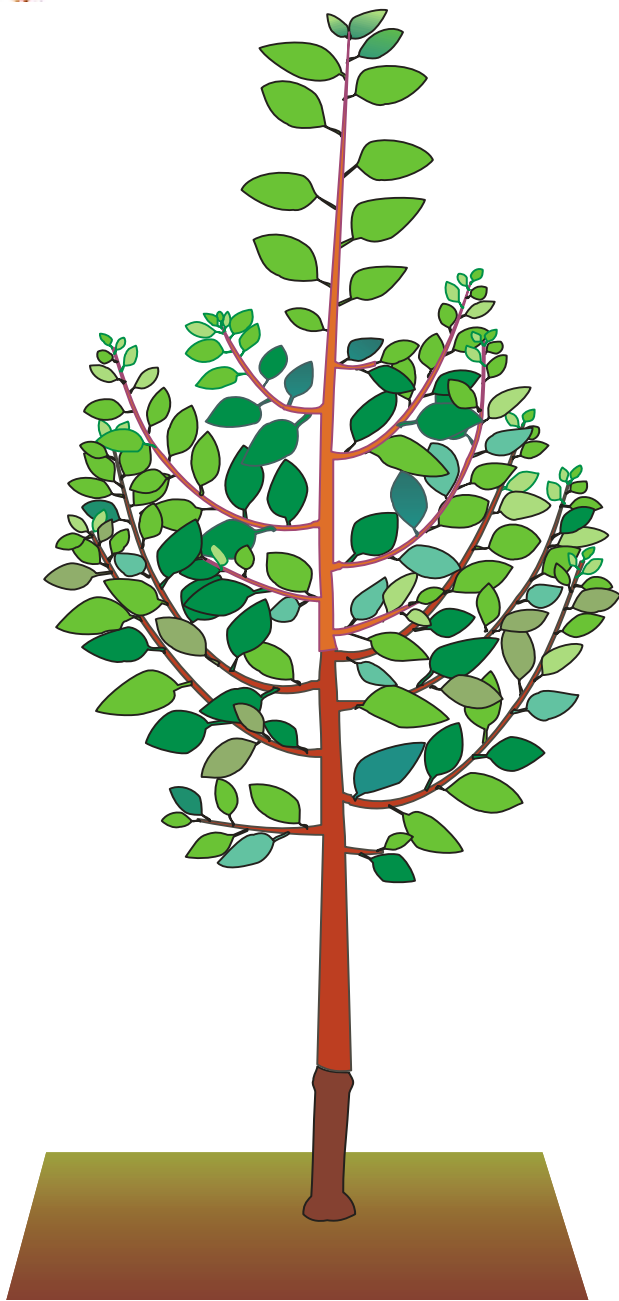
Botanical garden

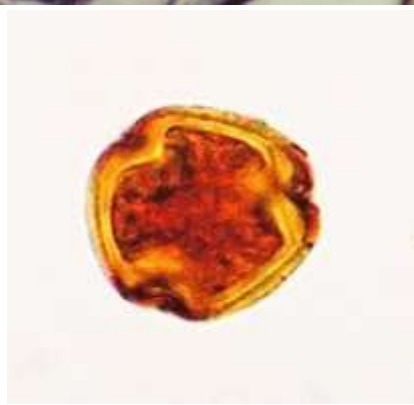
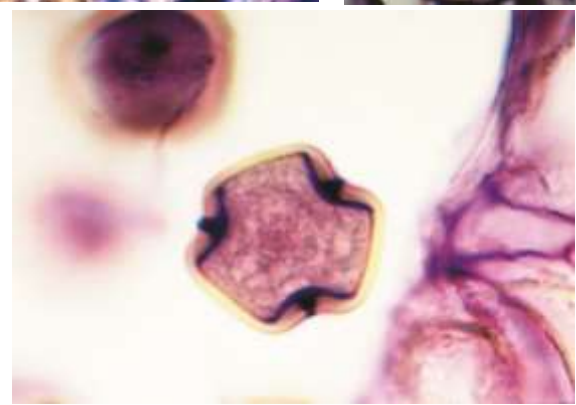
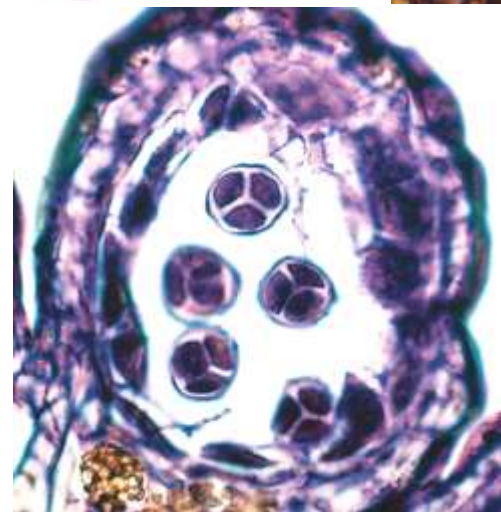
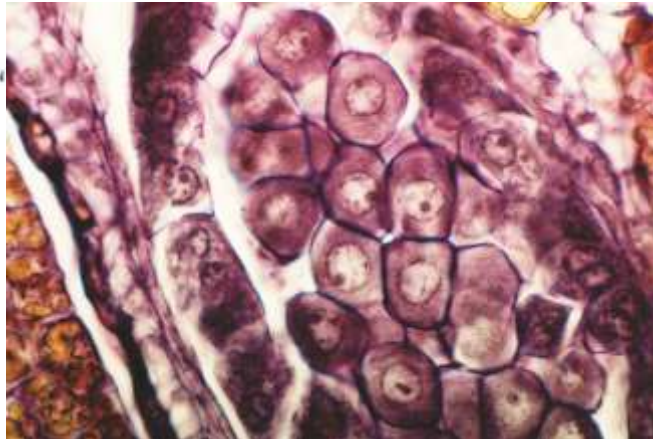
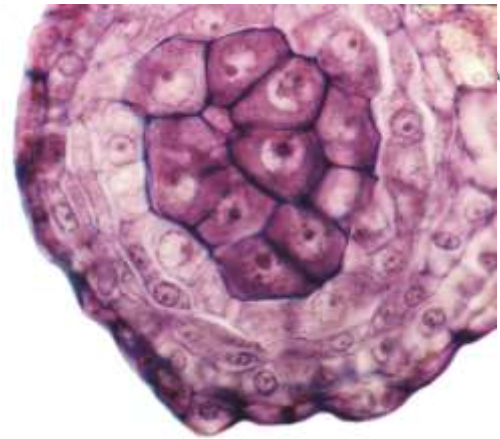
Botanical garden is a part of protected area and at a fully landscaped area of 3,5 hectares is planted arboretum with 147 wild native species and field collection of autochthonous varieties of fruit trees.





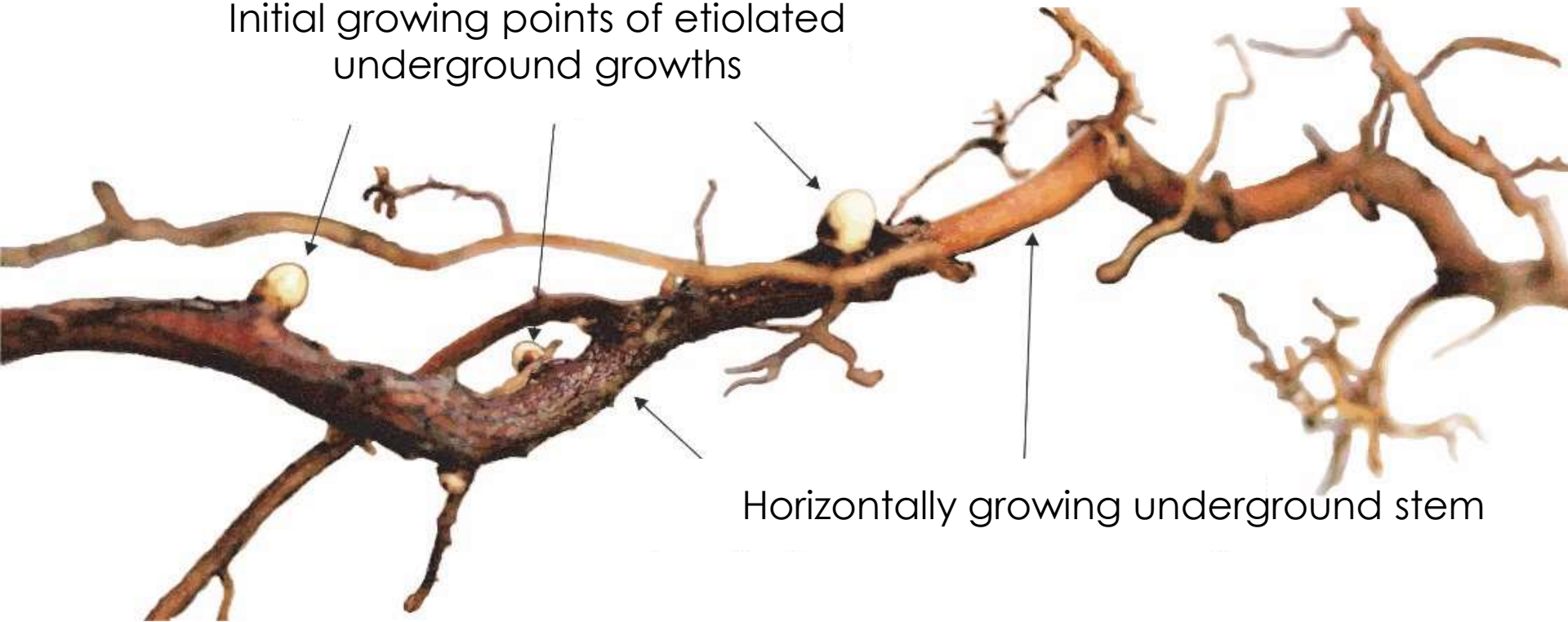








Initial growing points of etiolated underground growths



Horizontally growing underground stem





Thank you for your attention!

