GROWTH REGULATORS INFLUENCE ON CULTIVATION CONDITIONS *IN VITRO* OF *HEDYSARUM GRANDIFLORUM* L.

By Akashkina Julia

English advisor: Fomina T.N.

Scientific supervisor: professor Kalashnikova E.A.

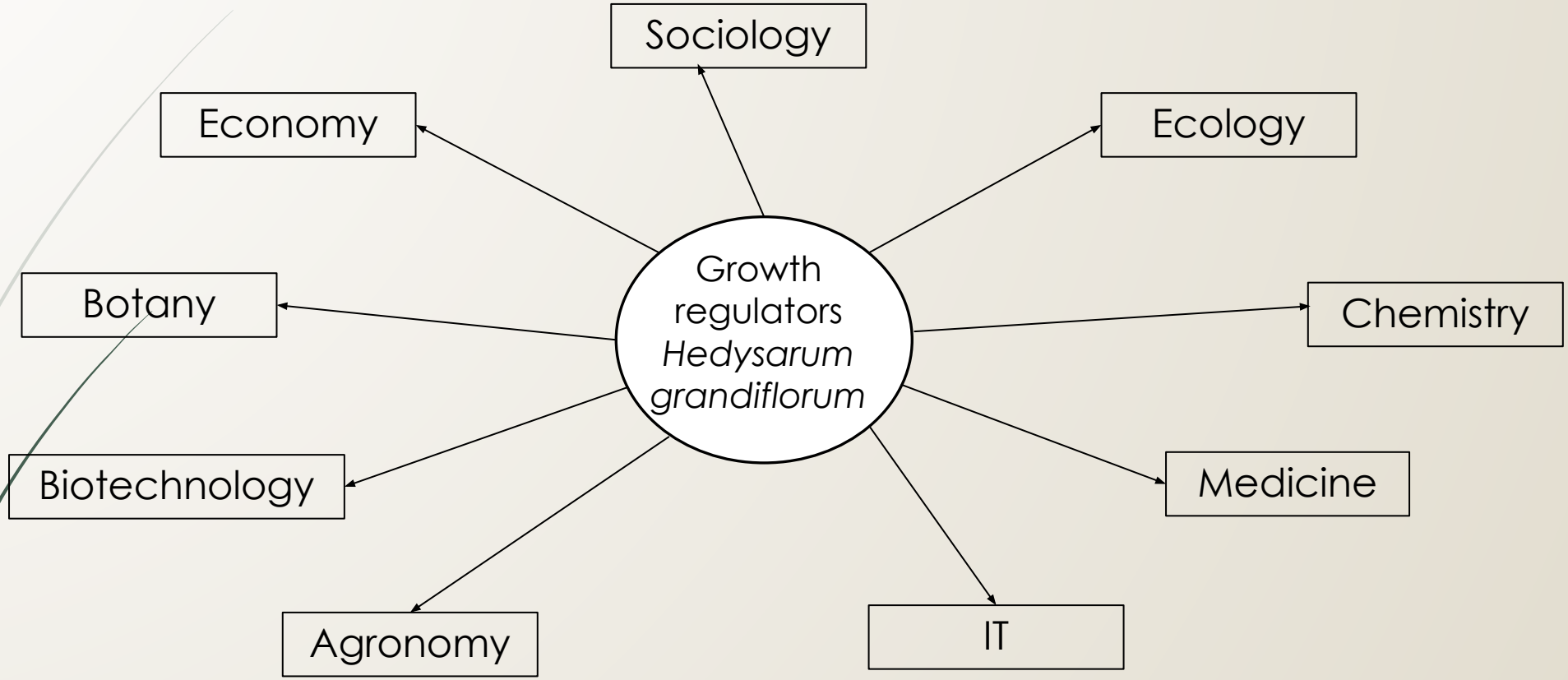
Moscow, 2018

Introduction

- Keywords: *Hedysarum grandiflorum*, plant biodiversity, *in vitro*, growth regulators, micropropagation
- Object: *Hedysarum grandiflorum*
- Subject: Growth regulators-auxins and cytokinins

https://ru.wikipedia.org/wiki

Relevance


Sociology
Economy
Ecology
Growth regulators *Hedysarum grandiflorum*
Botany
Chemistry
Biotechnology
Medicine
Agronomy
IT

Object

Family – Legumes

Genus- *Hedysarum*

Species - Hedysarum grandiflorum

https://sites.google.com/site/enciklopediaprirodysamobl5/home/-vyssie-rastenia/-pokrytosemennye/-dvudolnye/-bobovye/kopeecnik

Aim and objectives

To analyze growth regulators influence on cultivation conditions in vitro of *Hedysarum grandiflorum* L.

Objectives:

- to determine the effect of growth regulators on micropropagation
- to define the effect of growth regulators on rooting
- to select the optimal growth regulator concentration

Place, time

Biotechnology laboratory of the RSAU named after K.A. Timiryazev

September 2018- December 2020

Equipment, matherials

- Cytokinins- BAP, Kinetin, Dropp, Cytodef
- Auxins- IAA, IBA, NAA, Zircon

laminar box

test tubes

petrie dish

Methods

Experimental:

- Cultivation explants in test tubes under controlled conditions.
- Introduction to in vitro culture was performed in laminar box.
- The nutrient medium was prepared according to the recipe Murashige and Skoog
- Microclonal propagation

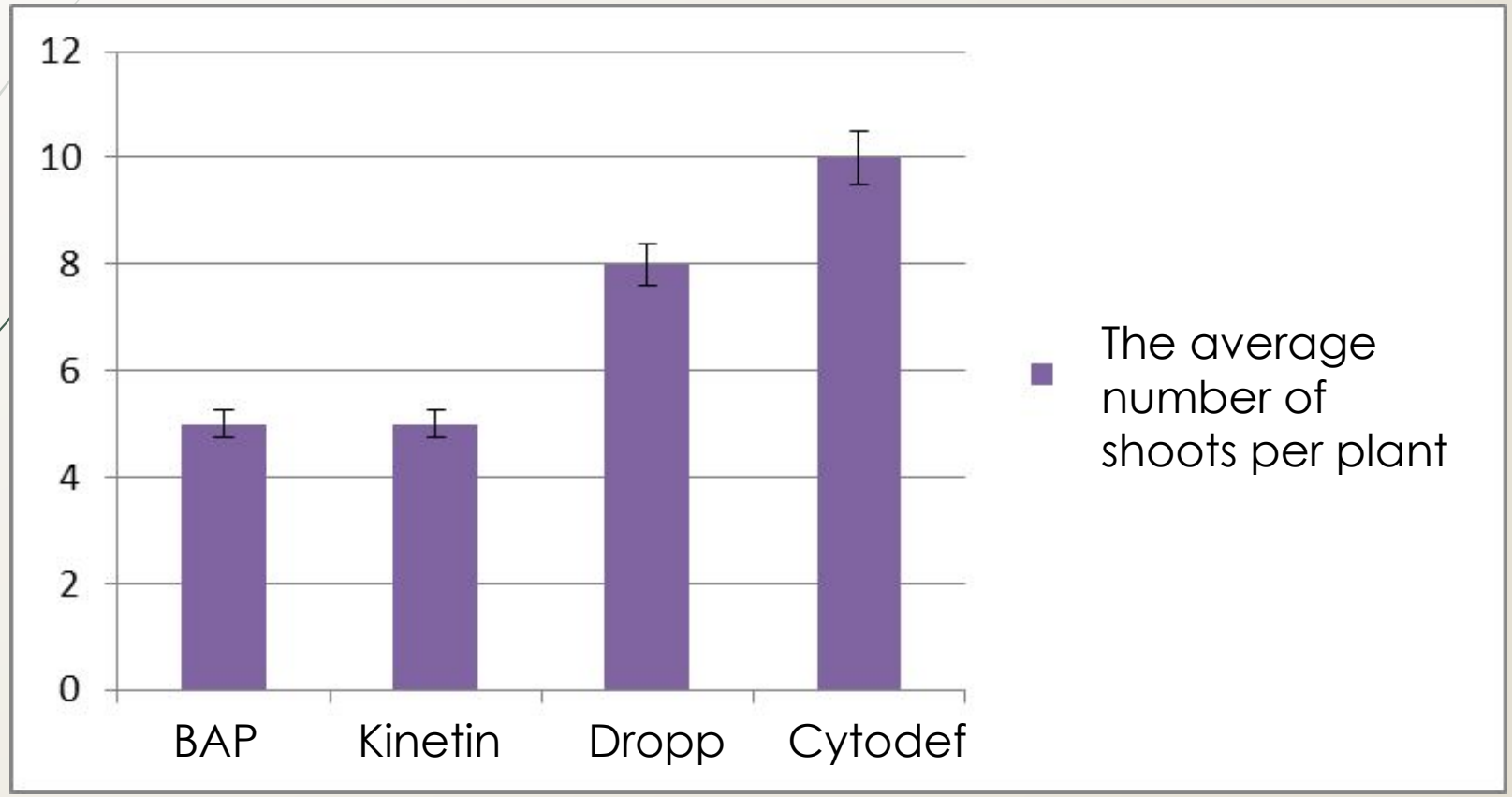
Analytical

Research stages

- To perform a literature search
- To obtain sterile culture of *Hedysarum grandiflorum*
- To plant explants on nutrient medium with the addition of auxins and cytokinins
- To determine the effect of cytokinins on shoot formation and the height of microshoots
- To find out the effect of auxins on the induction of rooting

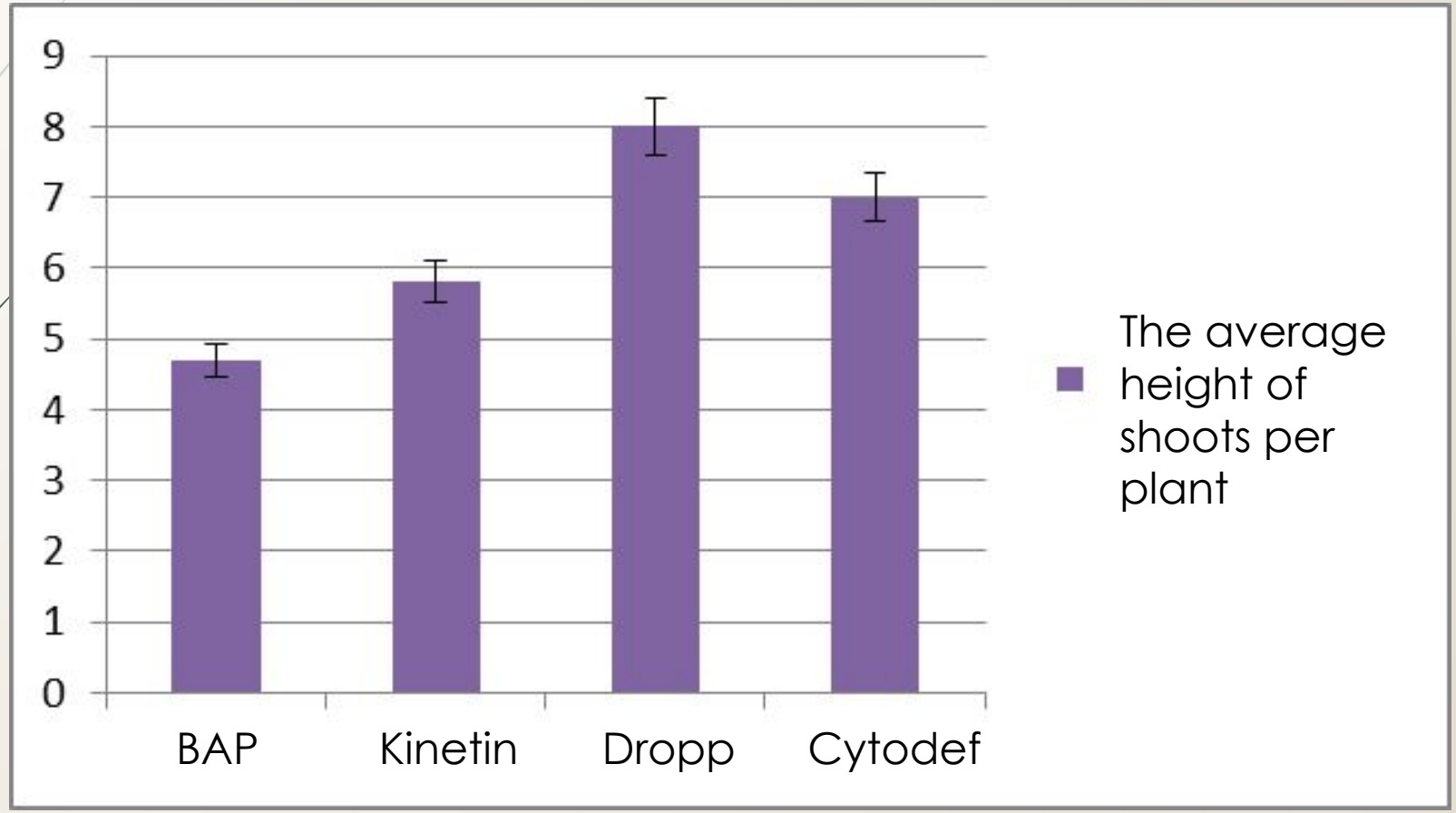
Data analysis

Effect of various cytokinins on shoot formation



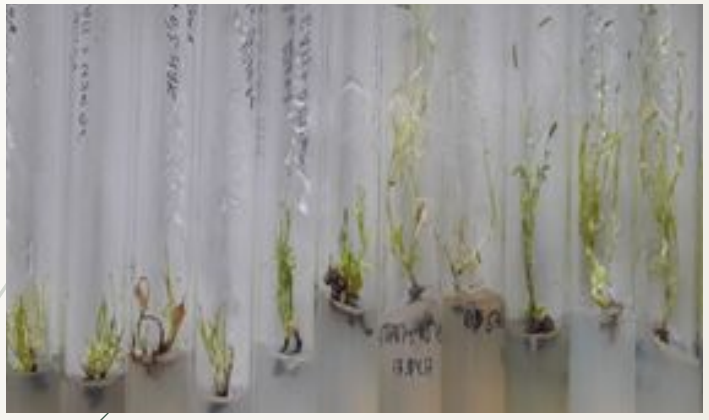
Data analysis

The effect of various cytokinins on the height of microshoots (cm)

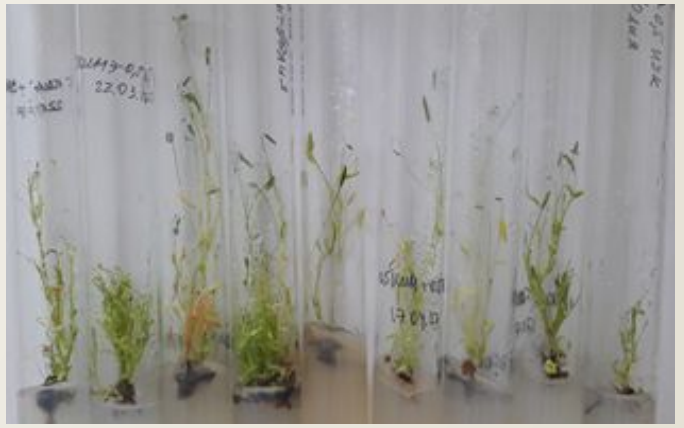


Data analysis

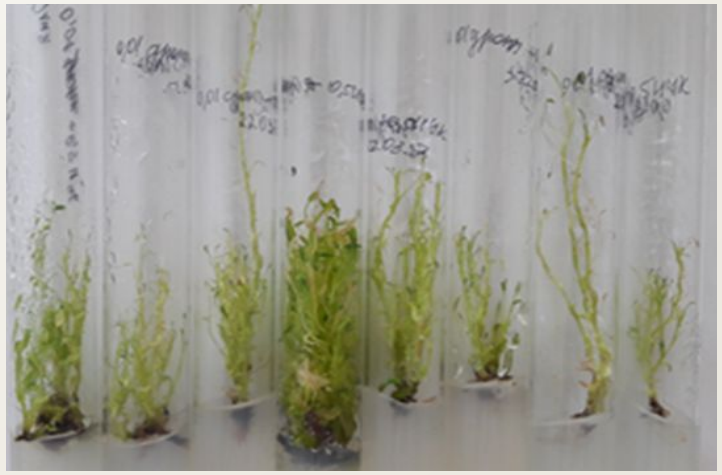
The formation of shoots on nutrient media containing cytokinins



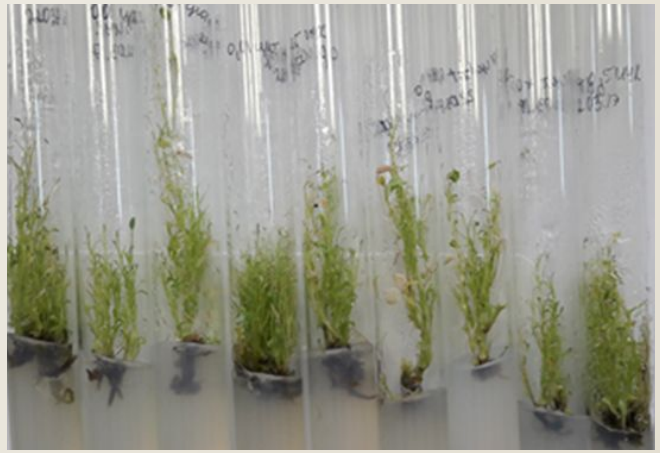
0,5 mg/l BAP



0,5 mg/l Kinetin

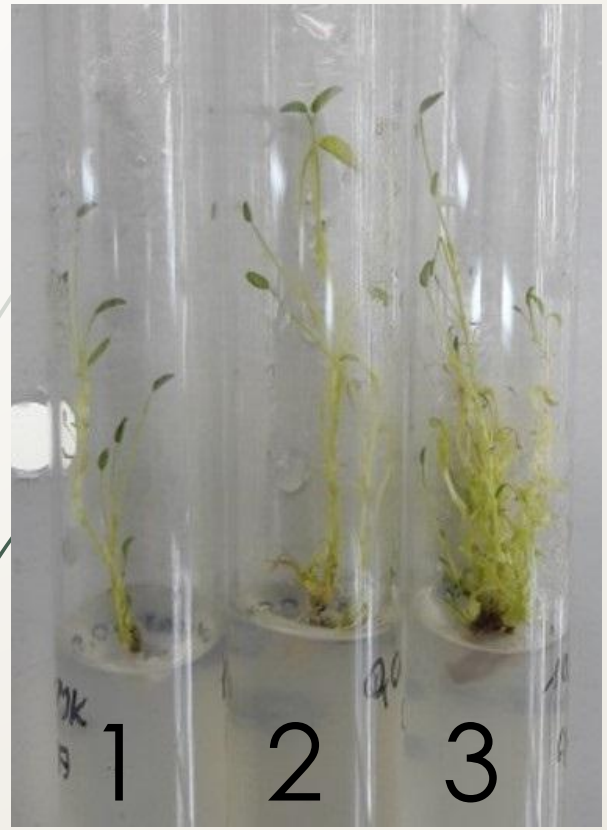


0,01mg/l Dropp

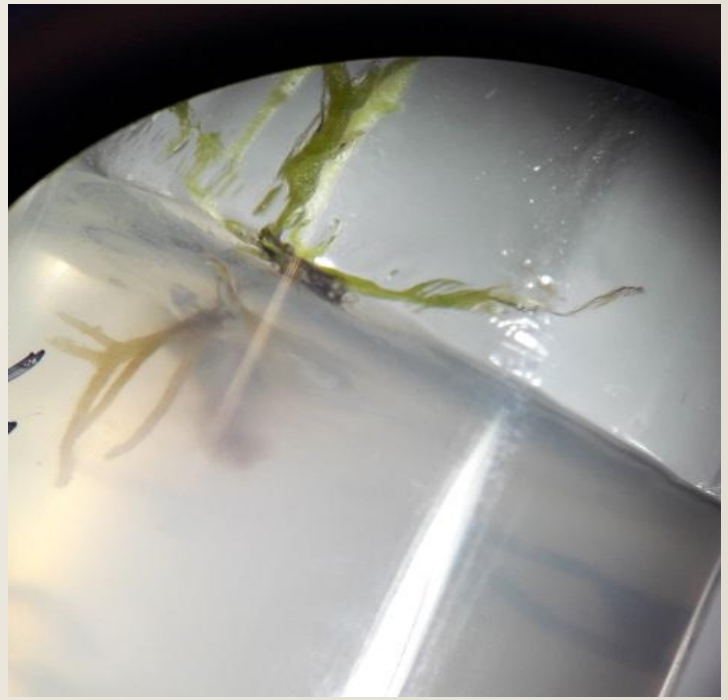


0,01 mg/l Cytodef

Data analysis
Induction of rooting



1- 0,01 mg/l Cytodef +0,5 mg/l IAA
2- 0,01 mg/l Cytodef +0,5 mg/l IBA
3- 0,01 mg/l Cytodef +0,5 mg/l NAA



0,01 mg/l Cytodef +0,5 mg/l Zyrcon

Results

- The largest number of microshoots was observed on the nutrient medium containing cytokinin Cytodef 0,01 mg/l.
- The highest height of the microshoots was observed on the nutrient medium containing cytokinin Dropp 0,01 mg/l.
- Induction of rooting was seen on nutrient medium containing auxin Zyrcon 0,5 mg/l.

Conclusion

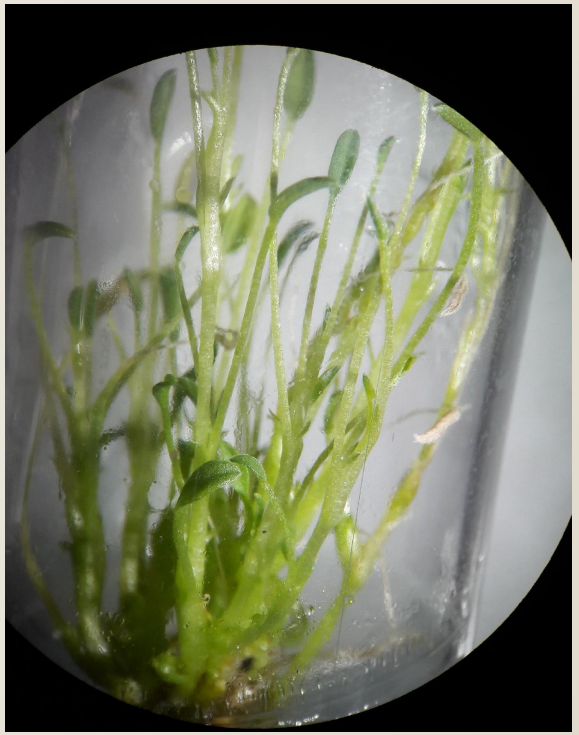
The optimal growth regulators will be selected, under the influence of which the largest number of viable rooted explants will be obtained

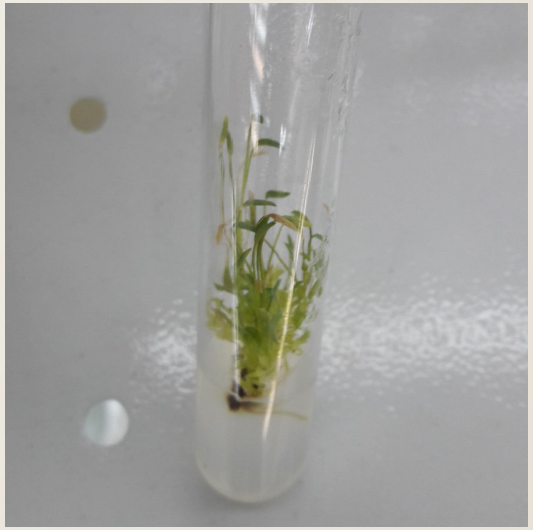
http://chalksteppe.org/ru/flora-and-fauna/species/hedysarum-grandiflorum.html

http://vlg-media.ru/2015/06/11/v-volgogradskoi-oblasti-nashli-novuyu-populjaciyu-krupnocvetkovogo-kopechnika-43312/

Significance

- Economy: Minimum costs for population recovery
- Ecology: Conservation plant biodiversity
- Sociology: Reception new medicaments





Thank you for being with us