**Topic: Plants growth and development**

**Lab Work.** Effect of indolile acetic acid (IAA) on root growth of wheat.

**Objective:** To determine the effect of the IAA on root growth. Tasks: To Identify the effect of IAA on root growth.  
**Guidelines.** 5 Petri dishes are lined with filter paper, moistened with 9 ml of water or a solution of IAA: 0, .01, 0.001;  
0.0001;, 00001%.

To obtain the indicated concentrations of 1 ml of the 0.01% IAA is poured into a volumetric flask of 10 ml, and then is filled with water up to the mark, mixed and placed in Petri dishes . The remainder 1 ml of IAA solution is diluted with water.

On moist filter paper five grains of wheat are laid and closed by lid.

A week later, the length of roots and shoots is measured, conclude about delay of roots and shoots growth or its stimulation depending on the concentration of IAA.

Fill in the table.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | |  | | | | | | | |
| Variant | | | length of roots, cm | | length of shoots, cm | | average length roots on 1 plant cm | Root length of variant to control,% | Shoot length of variant to control,% | |
|  | | |  | | |  |  |  | |  |

Write a conclusion

**Lab work 15.** *Determination of salt tolerance of cereals at germination of seeds and their growth.*

Under conditions of excess soil salinity seeds germination and rate of plant growth is reduced. On defining the level of salt tolerance its parameter is a comparison of the number of germinated seeds and growth at salt solutions and distilled water.   
Objective: To determine the salt tolerance of cereals.   
Maternals and equipment: Petri dishes, filter paper, KMnO4 or formalin solution (1 ml of formalin per 300 ml of water), beakers, glass cups, labels, a thermostat, pipetting on 10 ml, 7% solution of NaCl, disistilled water.   
Plants: Seeds of barley, wheat, corn, etc.   
Performance of work. Selected healthy seeds put in different glass cups with a label inside and treated with formalin or KMnO4 solution for 3-5 min for sterilization. Then they are washed by water, lightly dried and. The 10 seeds are laid in each Petri dish. Preliminarily filter paper is stacked on the bottom of petri dishes.

To each Petri dish 10 ml of 10% aqueous NaCl solution and 10 ml of distilled water (control) are poured. Experiment is carried out in triplicate.

Petri dishes with seeds are placed in the thermostat incubator at a temperature around 26 ° C for germination. After seven days in each variant, the number of germinated seeds is counted. The percentage of germination is determined by comparing it in both experiment variants. In addition, the length of roots and shoots is measured by ruler. The results are recorded in a table (Table 1, 2).

Table 1

Germination of seeds of cereals, depending on soil salinity

|  |  |  |  |
| --- | --- | --- | --- |
| Plant | experiment variants | number of germinated seeds | The percentage of germination *%* |
| Wheat | Н2О |  |  |
| NaCl 7, *%* |  |  |
| Barley | Н2О |  |  |
| NaCl, 7*%* |  |  |

Table 2

The length of roots and shoots of cereals, depending on soil salinity

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Plant | experiment variants | length of roots | length of shoots | The experiment variants/ control  *%* |
| Wheat | Н2О |  |  |  |
|  | NaCl 7*%* |  |  |  |
| Barley | Н2О |  |  |  |