Brassica napus ETHYLIC EXTRACT AS ECOLOGICAL PHYTOREGULATING AGENT

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Abstract

It is known that some of the important natural plant growth regulating substances are the Brassinosteroids. We have studied the phytoregulating effect of Brasicsa napus pollen ethylic extract on monocotyledonous (wheat) and dicotyledonous (cucumber) in laboratory conditions. We used different concentrations between 5-1000 ppm. The plant extract presents an important phytostimulating activity.

Keywords:

brassinolide, phytostimulating effect, monocotyledonous, dicotyledonous.

INTRODUCTION

Brassinosteroids are a group of naturally occurring polyhydroxysteroids [2]. Brassinosteroids was originally isolated from *Brassica napus* pollen [1,4]. In the present, more than 60 brassinosteroids have been identified, 31 of these have been completely characterized.

Brassinosteroids may thus be regarded as a new group of plant hormones with regulatory function in cell elongation and cell division [3].

In the present paper is presented the biostimulating effect of *Brassica napus* pollen extract on monocotyledonous (wheat) and dicotyledonous (cucumber) in laboratory condition.

EXPERIMENTAL

For the obtained *Brassica napus* pollen extract the solvent used was 87% ethylic alcohol in a Soxhlet extractor at constant temperature for 6-7 hours.

For the determination of the biological activity of this extract, the laboratory test applied was the general biotest Tsibulskaya – Vasslev [5,6] on monocotyledonous and dicotyledonous. With this assay we can establish the biological activity as stimulator or inhibitor of the plant growth.

Wheat caryopses from Alex species were used as monocotyledonous seeds and cucumber from Cornichon species as dicotyledonous. The used concentration were 20, 50, 100, 200, 500, 1000 ppm for monocotyledonous and 5, 10, 20, 50, 100, 200, 500 ppm for dicotyledonous, compared with control.

The average height of the plans, the average length of the main root, the number of the roots, estimated the effect of *Brassica napus* pollen extract on the growth of the plants.

RESULTS AND DISCUSSIONS

The data obtained from the experiments were calculated in percentage compared with the control. The results are listed in the figures 1,2.

On monocotyledonous the *Brassica napus* pollen extract stimulate the height growth of the plants with 13-19% at 50 – 100 ppm concentration.

The average length increases with 9% at 100 ppm.
The number of the roots increases with 22 – 36% at 20 – 500 ppm.

On dicotyledonous the height growth of the plants increases with 7% at 200 ppm concentration.

The length of main root increases with 11 – 26% at 5 – 200 ppm concentration.

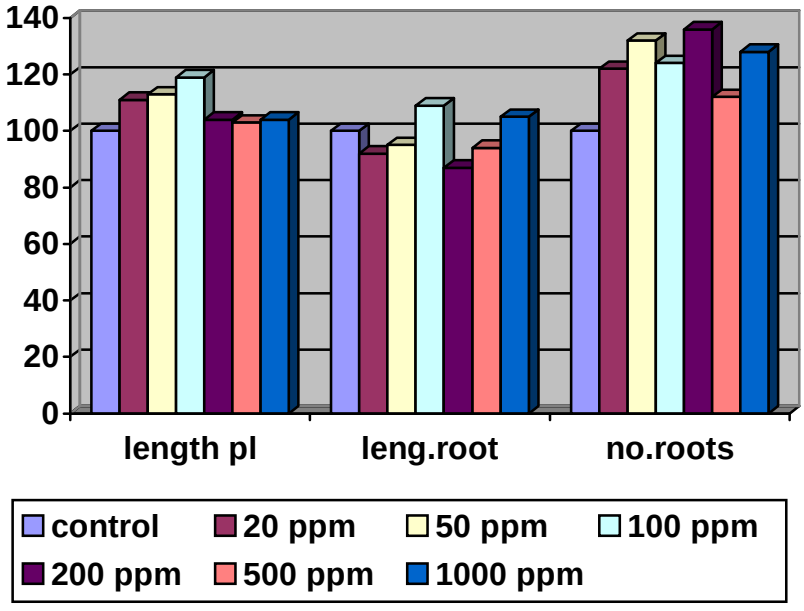

Fig.1. The effect of rape pollen extract on monocotyledonous

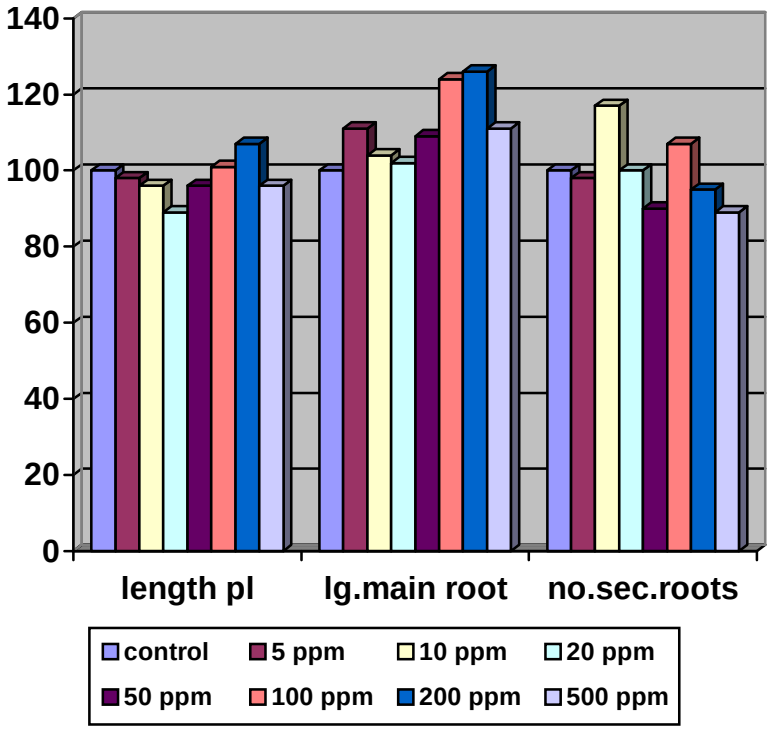

Fig.2. The effect of rape pollen extract on dicotyledonous

The number of the secondary roots increases with 17% at 10 ppm concentration.

CONCLUSIONS

Applying the treatment with *Brassica napus* pollen extract on monocotyledonous and dicotyledonous lead to the following effects:

- The extract stimulating the growth of plants with 13 – 19% at monocotyledonous and with 7% at dicotyledonous.
- The extract has a rooting effect, the number of the roots increases with 22 – 36% at monocotyledonous and on the dicoltyledonous the secondary roots increases with 17%, and the length of the main root growth with 11 – 26%.

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