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THE REGULATION OF GENES ACTIVITY IN THE PROCESS OF INTERCALARY MERISTEMS FORMATION AND THE AMITOSIS INSTALLATION IN *Helianthus annuus* L.

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Key words: The intercalary meristems, amitosis process and the growth of the organ plants.

Abstract: The regulation of genes activity in the proces of intercalary meristem formation and the amitosis installation in the *Helianthus annuus* L.

The sunflower's receptacle grow because of the intercalary meristems and of the direct division (amitosis) activity.

The precedence researches about the intercalary meristems are indicated the activve regions in the walls, the receptacle and in the placenta of the young fruits [1, 6, 8, 9]. The fruits growth take place in lateral extern and lateral intern meristems. The intercalary meristems are found at many monocotyledones in the internodes and in the leaf's sheath, at cucurbitacee in young fruits, at solanacee, at the inflorescence of asteraceae, in cabbage's leaf, etc. The activity of cell division (the amitosis) is responsable for the records in the growth of tomatos (1,1-3,5 kg), of the cabbage (1-2 m in diameter), of the pumpkin (320-340 kg). In that work we have proposed to demonstate the regulation of the genes activity in the process of the intercalary meristems formation and the amitosis installation.

Material and working method

In the intercalary meristems and the amitosis research were used the very young floriferous buds of *Helianthus annuus* L. The material was collected in June – July 1996 (a few days after fecundation), was fixed in neutral formol 4 % then it was dehydrated in alcohol, was put in xilol and finally in paraffin. The material after these operations was selectioned at paraffin microtom, it was deparaffined and was coloured in hematoxyline Böhmer Mayer. After colouring, the sections were dehydrated in alcohol, it were put in xilol and were mounted in Canada balsam.

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Results

These preparations were used for the microscopical abservations about the intercalary meristemes, their structure, cells number longitudinal and transversal sectioned, nucleuses number, etc. The average of nucleuses number in the one intercalary meristem is about 55,5. The one microscopic field has 5-6 intercalary meristems seated in a mass of parenchymatic cells observed using the objects lens and the ocular of the 20X.

The nuclei are closed spherical, oval and frequent fusiform, strong coloured; between them are dense cytoplasm. The amitosis process takes place by transversal fragmentation of the nuclei. As a great number and many possibilities in the multiplication the intercalary meristems are created the conditions for the growth stimulation in volume of the receptacle and of the calatidium. A paranchymatical cell is dedifferentiated, is repetable divided and will be form a new intercalary meristem, when the distance is large between the older meristems. During a month (30-40 days), the growth of the inflorescence are made by the intercalary and the amitosis process. The regulation of the genes activity in moulding the intercalary meristems and the amitosis process takes place in ***Helianthus annuus*** **L.** on many stages. Under the influence of the photoperiodism in young plants of sunflower are formed the florigene, the blossssom substance. Under the sunlight influence take place the first commutation of genes activity in enzymes forming of the florigene's synthesis. Synthesing florigene go to the vegetative apex and there induce the genes activity from the vegetative growth to the reproductible one. That represent the second regulation of the genes activity leading to the formation of the new flower primordials. The third commutation of the genes activity are represented by the amitosis installation and "novo" forming the intercalary meristems in the receptacle.

Growing process of the sexual organs (stamens and ovaries) has place with the fourth regulation that regulate macrosporogenesis and microsporogenesis. After the pollination and fecundation, the cell-eggs have divided which represent a new stage of genes regulation. In sunflowers ontogenesis are observed the ultrastructure, the structure, the tissues and new organs forming by the genes activity regulating. In one stage of the anthesis process are coming out the receptacle with intercalary meristems and the amitosis process.

Conlusions

1. The sunflower's receptacle grow because of the intercalary meristems, and of the direct division (amitosis).

2. Forming receptacle with intercalary meristems are preceded by the regulation of the genes activity involved in those neoformating genesis.

3. As a growth promoter are interfered the external inductors (the photoperiodism) and the internal inductors like florigenes.

4. The intercalary meristems and the amitosis are observed only in the tissues with short longevity (fruit's wall, leaves, the receptacle) and not in the seed's tissues.

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