MICROPROPAGATION OF SOME HORTICULTURE AND GARDEN SPECIES UNDER *IN VITRO* CONDITIONS

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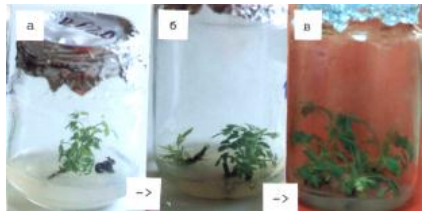
Abstract

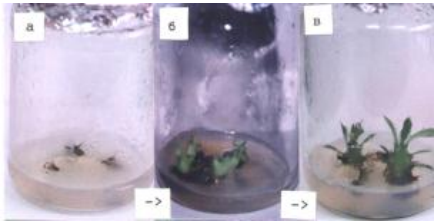
At the beginning of the XXI century, the perspectives of the plant biochemistry and physiology are directed to examine the capability of plant cells and tissue culture for vegetative propagation. The method of in vitro cultivation of plant cell and tissue cultures is used for vegetative propagation (micropropagation) of plants. The vegetative propagation of the plants under *in vitro* conditions enables to abbreviate the process of selection, enhance the genetic stability of plants and improve the production of healthy plants without virus infection. The results from the experimental work from the capacity of *in vitro* micropropagation of some plant species are presented in the project, obtained from different initial explants and on different hormonal medias, done at the laboratory of biotechnology at the Department of biotechnology, genetics and selection of plant, Faculty of agriculture, Goce Delcev University – Stip.

The aim of the project was to examine the micropropagation of the following horticulture species: *Rosa* spp., *Dianthus caryophillus*, *Myrillocactus geometrizans*, *Echinopsis spachiana*, garden crops *Capsicum annuum* L., *Lycopersicon esculentum* Mill., *Cucumis sativus* L., as well as androgenesis of pepper *Capsicum annuum* L., derived from several genotypes which led to several selection and lines included in the breeding process at the Department of biotechnology, genetics and selection of plant at the Faculty of agriculture in Strumica. Also is performed micropropagation on other species which are with great economic and commercial interest for Faculty of agriculture, Goce Delcev University – Stip.

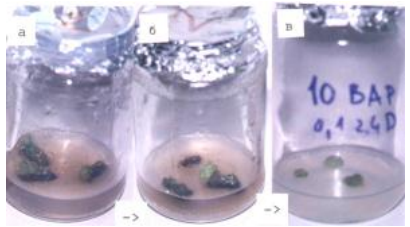
MICROPROPAGATION OF SOME ORNAMENTAL SPECIES



Micropropagation of Rosa – miniature pot roses



Micropropagation of Myrillocactus geometrizanas



Micropropagation of Echinipsis spachiana

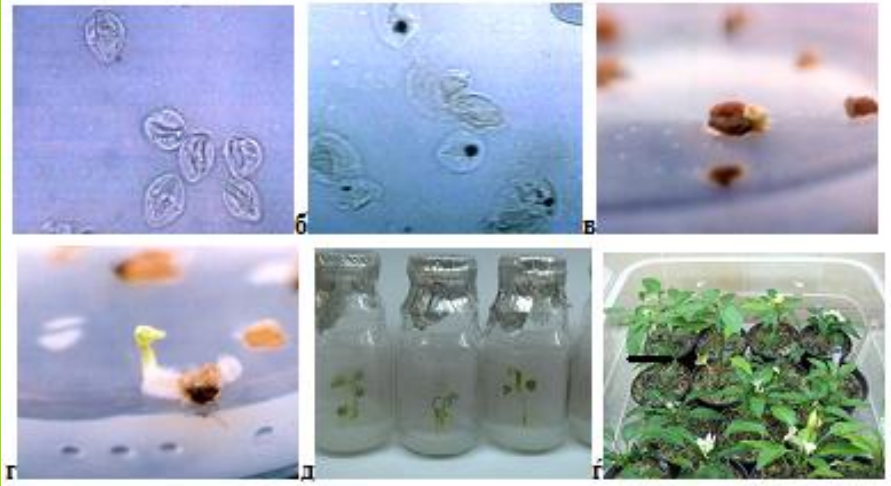
MICROPROPAGATION OF SOME GARDEN SPECIES

Shoot culture of pepper *Capsicum annuum* L.

Shoot culture of tomato *L. esculentum* Mill.

Shoot culture of cucumber *Cucumis sativus* L

ANDROGENESIS OFCAPSICUM ANNUUM L.



RESULTS

Species	Explant	Medium+Growth Regulators mg·l^{-1}	Results
Capsicum annuum L.	apical buds	MS + 5.0 BAP + 0.5 NAA MS + 10.0 BAP + 0.5 IAA MS +1.0ZEA	callus shoots
	Anthers	CP + 0,01 KIN + 0,01 2,4D R_1 + 0,01 KIN	embryos
	hypocotyls 1/3 cotyledons	MS + 10.0 BAP + 0.5 NAA MS + 30.0 BAP + 1.0 IAA MS + 5.0 ZEA MS + 2.5 2iP	callus
Lycopersicon esculentum Mill.	apical buds	MS + 4.5 BAP + 0.3 IBA MS + 6.0 BAP + 0.4 IBAA MS + 4.5 KIN + 0.3 IAA	shoots
	hypocotyls 1/3 cotyledons	MS + 1.5 BAP + 0.1 IBA MS + 3.0 KIN + 0.1 IAA MS + 6.0 BAP + 0.4 IBA	callus
Cucumis sativus L.	apical buds	MS + 11.0 KIN + 3.5 IBA	shoots
	hypocotyls	MS + 2.0 KIN	callus
	1/3 cotyledons	MS + 6.5 BA+10.0 2,4 D	callus

CONCLUSION

The application of *in vitro* techniques for mass micropropagation of plants have great success with the ornamental, fruit, forest, horticultural and medical species. In *in vitro* conditions full recovery of more than 300 plant species is achieved, and the method has a special significance in the research of several fields as plant physiology, biochemistry, biotechnology, molecular biology and others. Today, without the use of *in vitro* methodology , many sophisticated and complex processes at the molecular level can not be imagined and implemented, which challenge the XXI century.

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