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EFFECT OF $HgCl_2$ ON SURFACE STERILIZATION OF EXPLANTS OF *MOMORDICA CYMBALARIA* HOOK. F.

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ABSTRACT:

Momordica cymbalaria is a tuberous and monoecious species. It is rare and endemic medicinal plant found to be distributed at few localities in Maharashtra, A.P. and Karnataka. Due to its food and medicinal value the species is extensively exploited by the local people hence it is the time to protect the species by means of conservation. So with this impact *In vitro* culture technique is used as a conservation strategy for *M. cymbalaria*. During this research work four different explants of *M.cymbalaria* were first washed under running tap water to remove soil and dust particles. Then the explants were washed with solution of labolene and rinsed thoroughly with distilled water and kept ready for explant sterilization. These explants were also subjected to freshly prepared various concentrations of mercuric chloride ($HgCl_2$) solutions (0.05-0.3%) varied with time intervals. After the treatment the explants were washed off with sterilized double distilled water and then used for inoculation. The explants treated with 0.15% of mercuric chloride were more effective

than other concentrations the explants. These explants were showing maximum percentage of growth on M.S. media.

***KEYWORDS*:** Surface Sterilization, Explants, *Momordica cymbalaria*.

INTRODUCTION:

Momordica cymbalaria is a tuberous and monoecious species of Cucurbitaceae family. It was growing like weed in most of drier regions of Maharashtra mostly in Solapur, Satara districts. But now, it is rare and endemic medicinal plant found to be distributed at few localities in Maharashtra, A.P. and Karnataka. Due to its food and medicinal value the species is extensively exploited by the local people. Hence it is the time to protect the species by means of conservation. So with this impact *In vitro* culture technique is used as a conservation strategy for *M. cymbalaria*. During this research work four different explants like leaves, stem, axillary buds, apical bud, and tuber of *M.cymbalaria* were first washed under running tap water for 30 min to remove soil and dust particles. Then the explants were washed with solution of labolene and rinsed thoroughly with distilled water and kept ready for explant sterilization. These explants were also subjected to freshly prepared various concentrations of mercuric chloride ($HgCl_2$) solutions (0.05-0.3%) varied with time intervals After the treatment the explants were washed off with sterilized double distilled water. These explants were showing maximum percentage of growth on M.S. media.

MATERIAL AND METHODS:

During this research work four different explants like leaves, stem, axillary buds, apical bud, and tuber of *M.cymbalaria* were first washed under running tap water for 30 min to remove soil and dust particles. Then the explants were washed

with solution of labolene and rinsed thoroughly with distilled water and kept ready for explant sterilization. These explant then directly used for inoculation. In another trial the explants washed in running water and rinsed with labolene were then also subjected to freshly prepared various concentrations of mercuric chloride ($HgCl_2$) solutions (0.05-0.3%) varied with time intervals (1- 10 min). Sterilization is the process of making explants contamination free before establishment of cultures (Anoop *et.al* 2010). After the treatment of $HgCl_2$ the explants were given three to four times washing of sterilized double distilled water. The explants were blotted on a sterilized tissue paper and cut into approximate size and inoculated on the sterile nutrient media

RESULTS AND DISCUSSION:

Each experiment with three replicates was arranged and then result was recorded on the basis of physical appearance of the explant. It is clear from the results that the explants washed only with running water shows very less percentage of growth response. The explants washed with water and then rinsed with labolene were showing somewhat better response than earlier treatment. The explants treated with 0.15% of mercuric chloride were more effective than other concentrations the explants (Gopal *et al., 1998*). The lower concentration of $HgCl_2$ shows contamination of explant and higher concentration of $HgCl_2$ affects the explant tissue adversely and it becomes brown. (Table No.1)

CONCLUSION:

The explants treated running water only and washed with water and then rinsed with labolene were showing very poor response of sterilization. The explants treated with 0.15% of mercuric chloride were more effective than other concentrations the explants.

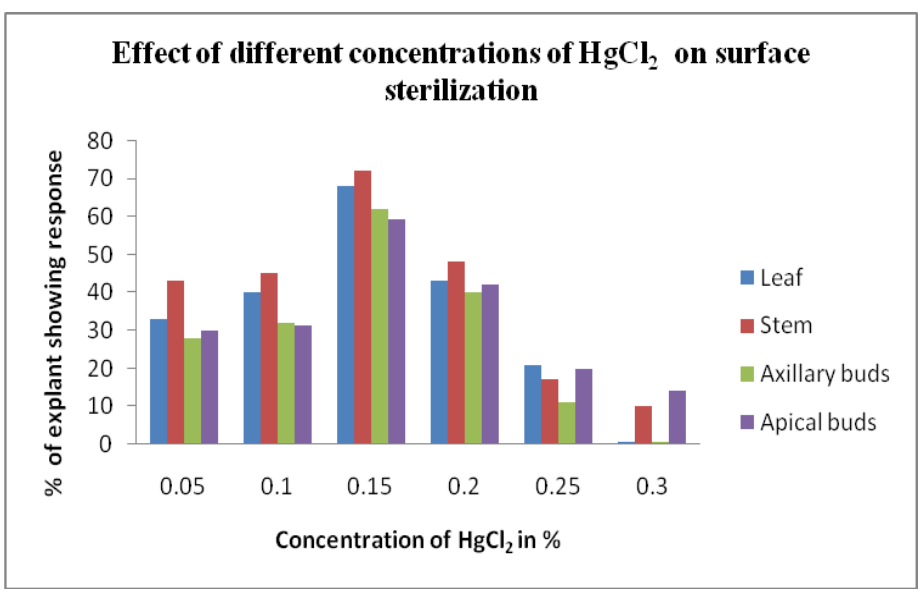
Table 1. Effect of different concentrations of $HgCl_2$ on surface sterilization

Concentration of $HgCl_2$ in percent	% of explant showing response			
	Leaf	Stem	Axillary buds	Apical buds
0.05	33 ± 1.2Δ	43±0.2Δ	28±0.1Δ	30 ±0.2Δ
0.10	40.1±0.0■	45 ± 0.0■	32±2.2■	31.1±0.2■
0.15	68±0.0■	72±0.0■	62±0.1■	59±2.1■
0.20	43.1±0.1■	48.1±0.1■	40±1.3■	42±0.3■
0.25	21±0.0●	17±0.1●	11.0±0.0●	20.0±01●
0.30	8±1.0●	10±0.1●	0.8±0.0●	14.0±0.0●

■ Remains green ● Browning Δ Contamination

Figure 1. Effect of different concentrations of $HgCl_2$ on surface sterilization

(Wescott *et al.,* (1977) and Goodwin *et al.,* (1980)**)**



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