

## **Effect of Explant Source and Hormone Combinations on In-vitro Propagation of Different Genotypes of Gerbera (*Gerbera jamesonii*)**

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This research was carried out to study the effect of explant and hormone combinations on *in-vitro* propagation of different genotypes of Gerbera, in order to produce high quality, disease free planting materials for commercial cultivation. Experiments were conducted to select the best hormonal combinations among TDZ, IAA, 2,4-D and to select best calli and to find out the best hormonal combination to develop green calli. Treatments were replicated five times and allocated according to the complete randomized block design.

In experiment one, leaf and capitulum of explants Ecco and Winter Queen varieties were cultured in MS media supplemented with different combinations of TDZ, IAA and 2,4-D. In experiment two, leaf and capitulum explants of the hybrid of Ecco and Winter Queen were treated with the selected best hormone combinations from experiment one. The selected, best dal from experiment one and two were transferred in to the multiplication media (MS with 0.5 mg/I BA, 0.5 mg/I Kinetin and 0.4 mg/I IAA) in experiment three, to find out the best hormone combinations to develop the desired green calli. Culture conditions for all experiments were maintained, at  $26 \pm 2$  °C, 25% RH and 16 hour photoperiod. All experiments were designed using CRD with 5 replicates. In experiment one and two, the percentage of calli growth was recorded.

*In vitro* propagation of variety Ecco and Winter Queen with capitulum explant can be combined with 0.5 mg/I IAA and 0.5 mg/I TDZ economically, as there was no significant difference ( $P < 0.05$ ) in percentage of calli growth and green calli development compared to 0.5 mg/I IAA and 1.0 mg/I TDZ. In hybrid, capitulum explant was not significantly succeeded ( $p < 0.05$ ) whereas leaf explant recorded the highest calli growth (85%) at  $p < 0.05$  with 1.0 mg/I 2,4-D. The best green calli growth in multiplication media was recorded in sixth weeks after establishment and no significant growth was observed thereafter.

The results of above experiments revealed, that the hormone combinations of 0.5 mg/I TDZ and 0.5 mg/I IAA with capitulum explant in variety Ecco and Winter Queen and the leaf explant of hybrid with 1.0 mg/I 2,4-D can be successfully used in *in-vitro* propagation of Gerbera in commercial scale.

Key words: IAA, TDZ, Capitulum, Multiplication, Calli growth