

Contamination Free Callus Cultures in Strawberry (*Fragaria x ananassa* Dutchcv.)

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Abstract : A successful callus initiation of *in vitro* culture depends on appropriate concentrations of plant growth regulators (PGRs) supplemented to the culture medium. Suitable protocol for surface sterilization is crucial to overcome microbial contamination and may be browning problems to induce callus. This project was carried out to examine different concentrations of α -naphthalene acetic acid (NAA) and 6-benzylaminopurine (BAP), (M1= 4mg^{-1} NAA+ 1mg^{-1} BA, M2 = 5mg^{-1} NAA+ 2mg^{-1} BA, M3= 0.3mg^{-1} NAA+ 1mg^{-1} BA or(M4= 0.5mg^{-1} NAA+ 2mg^{-1} BA)supplemented to MS medium culture. Two strawberry cultivars (Albion and festival) were chosen and leaf discs explants were dissected. Seven different sterilization materials were examined on both cultivars to determine the best one in reducing microbial contamination with minimum necrosis at relevant period of sterilization. Different levels of activated charcoal (0, 0.2, 0.3 and 0.4g^{-1}) were incorporated into culture medium to minimise browning. Results showed that M1 is the best PGRs combination for callus induction of festival leaf explants, while M2 was the best for Albion. Sodium hypochlorite at 4% for 20 min was the most efficient for causing 90% contamination free cultures for festival cultivar. The concentration 3% of sodium hypochlorite treated with Albion explants achieving 90% contamination free cultures as well. The concentration of 0.2g.l^{-1} of activated charcoal reduced browning in cultures permitting callus initiation. Developing an efficient protocol for callus initiation is important for strawberries propagation using *in vitro* approaches.

Key words : Strawberry, PGRs, activated charcoal, surface sterilization, browning.

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