

**CONTROLLING PHENOLIC COMPOUND ON SHOOT TIP  
CULTURE OF HARUMANIS (*Mangifera indica*) BY USING  
DIFFERENT ANTIOXIDANT AGENTS**

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## DECLARATION

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## ABSTRACT

### CONTROLLING PHENOLIC COMPOUND ON SHOOT TIP CULTURE OF HARUMANIS (*Mangifera indica*) BY USING DIFFERENT ANTIOXIDANT AGENTS

Micropropagation performance can be disrupted by contamination of explant and medium. Moreover, the *in vitro* growth performance of *Mangifera indica* is limited by the phenolic compound exudation on culture medium by the explants leading to culture medium browning, which reducing the regeneration as well as lead to explants necrosis. The objectives of this study are to observe the best surface sterilisation methods in controlling microbial contamination of explant and to observe the best antioxidant agent in reducing phenolic compound in the culture medium. In this study, the shoot tip of *Mangifera indica. L*, Harumanis, was used as a source of explants. The explants were treated with three different methods of surface sterilisation. The method that has a lower possibility of contamination were used further in the next experiment. In a different experiment of observing the degree of browning, the explants were treated with different antioxidant agents such as, ascorbic acid, citric acid, polyvinylpyrrolidone (PVP) and activated charcoal to identify the best agents in reducing browning of culture medium which caused by the phenolic compound. Another treatment that was used in this study is the different culture medium to study the regeneration of shoot tip, the mediums will be Murashige and Skooge (MS) and Woody Plant Medium (WPM). As a result, Method 3 shows 45% of explants cultured were free from microbial contamination. In other experiment to control browning problem, explants that were treated with MS medium with 1.5 mg/L ascorbic acid and 2.0 g/L activated charcoal has the lowest percentage of browning rate which was 84% while explants treated with 1.5 mg/L ascorbic acid and 1.5 mg/L in WPM has the least browning rate percentage which was 80%.

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