

**CALLUS INDUCTION FROM STEM OF SWEET POTATO**  
*(Ipomoea batatas)*

**NABIL AFLAH BIN MOHD RAEH**

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Dr. Rosli bin Noormi  
Supervisor

Faculty of Applied Sciences  
Universiti Teknologi MARA (UiTM)  
Negeri Sembilan, Kampus Kuala Pilah,  
Pekan Parit Tinggi, 72000 Kuala Pilah  
Negeri Sembilan.



Pn. Siti Norazura binti Jamal  
Coordinator FSG 661 AS201  
Faculty of Applied Sciences  
Universiti Teknologi MARA (UiTM)  
Negeri Sembilan, Kampus Kuala Pilah,  
Pekan Parit Tinggi, 72000 Kuala Pilah  
Negeri Sembilan.



Dr. Aslizah binti Mohd Aris  
Head of Biology School  
Faculty of Applied Sciences  
Universiti Teknologi MARA (UiTM)  
Negeri Sembilan, Kampus Kuala Pilah,  
Pekan Parit Tinggi, 72000 Kuala Pilah  
Negeri Sembilan

Date: \_\_\_\_\_

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## ABSTRACT

### CALLUS INDUCTION FROM STEM OF SWEET POTATO

*(Ipomoea batatas)*

Sweet potato (*Ipomoea batatas*) is a type of dicotyledon plant that was consumed as an important crop in several countries such as Africa and China. However, most of people only use up the tuber of sweet potato but the other parts such as leaves and stems are usually discarded. Based on previous study, the stems of sweet potato plant actually contain secondary metabolite. It is related to a research conducted by Muhamad Ridzuan (2017) that was found the presented of unknown alkaloid in stems of wild sweet potato plant. As reported, alkaloid may be used in treatment of ovarian cancer. Therefore, the comparison of alkaloid that presented within the callus induced from this study and the wild type plant will be done. The purpose of this research is to induce the callus from stem of sweet potato by using different types of hormones such as 2,4-dichlorophenoxyacetic acid (2,4-D), naphthaleneacetic acid (NAA) and indole-3-acetic acid (IAA) at different concentrations. Other than that, the aim of this study is to compare the callus induction from stem of sweet potato by different types of phytohormone such as, 2,4-dichlorophenoxyacetic acid (2,4-D), naphthaleneacetic acid (NAA) and indole-3-acetic acid (IAA) at different concentrations (1.0, 2.0, 3.0, 4.0 and 5.0 mg/L). The explants were cultured in media containing of phytohormone and was observed in 30 days. Results obtained shown that the best hormone induced callus was NAA, followed by 2,4-D. Unfortunately, there was no callus induced through IAA. Based on concentration, the highest percentage callus was induced by NAA at 1.0 and 4.0 mg/L (100%). Meanwhile, the percentage of callus induced by 2,4-D was at 5.0 mg/L concentration (6.67%). For the narrowed down concentration of 2,4-D, the highest percentage of callus (66.67%) was induced at concentration 1.8 mg/L. After 4 days, yellowish colour of callus was obtained from the sample supplemented with all phytohormones. According to the result, the presented of secondary metabolites such as alkaloid can be detected through Thin Layer Chromatography (TLC) from the callus induced. Therefore, the optimization of callus growth by using different media and formulation of concentration phytohormone can be done. In addition, the concentration of the alkaloid can be obtained through High Performance Liquid Chromatography (HPLC).