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KEY WORD: GIBBERELLIN, OPTIMIZATION, Gibberella fujikuroi

SUPACHAI SAMAPPITO : OPTIMAL CONDITIONS FOR THE PRODUCTION OF
GIBBERELLINS BY Gibberella fujikuroi N9-34. THESIS ADVISOR :

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The suitable medium composition for production of GA_3 by Gibberella fujikuroi N9-34 contained per liter : 120 g of sucrose, 2.39 g of $(NH_4)_2SO_4$, acid hydrolyzed cotton seed hull with nitrogen content of 1.14 g, 5.0 g of KH_2PO_4 , 1.0 g of $MgSO_4 \cdot 7H_2O$, 0.1 g of Al_2O_3 and 0.2% (v/v) soybean oil with the initial pH of 7.0. By using this medium, cultivation of G. fujikuroi N9-34 in shaken flask at $25^\circ C$ and 300 rpm. yielded 838 and 1162 mg of GA_3 per liter on day 7 and 11 of cultivation, respectively. However, it was found that this medium was not suitable for GA_3 production in a 5 l-fermentor as only 347 mg of GA_3 per liter was obtained on day 7 of fermentation. Nitrogen and carbon sources of the medium were then modified by using 5.90 g of defatted soybean meal instead of hydrolyzed cotton seed hull and in the presence of 1.89 g of $(NH_4)_2SO_4$ and 100 g of sucrose. With this medium, production of GA_3 in a 5 l-fermentor under controlled temperature at $25^\circ C$, 600 rpm agitation and 1 vvm aeration yielded 1091 and 1534 mg of GA_3 per liter on day 7 and 11, respectively. These values were 30% and 32%, respectively, higher than those obtained by shaken flask cultivation.

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