Effects of Jasmonic acid and Yeast Extract on Secondary Metabolite Contents in Shoot Culture of *Dioscorea birmanica* Prain & Burkill

**Abstract**

Hua-Khao-Yen (*Dioscorea birmanica* Prain & Burkill) is a medicinal plant which its rhizome has been used with other medicinal plant species for the treatments of cancers, lymphatic diseases and AIDS. Supplementation of elicitors such as Jasmonic acid (JA) and Yeast extract (YE) in culture medium has been used to stimulate secondary metabolite contents in plant tissue culture. Therefore, the objective of this study was to investigate the effect of JA and YE concentrations on secondary metabolite contents of Hua-Khao-Yen shoots grown under aseptic conditions. The results showed that the highest total saponin contents of 1254.76±72.06 and 1182.86±56.45 µg diosgenin/g dry extract occurred on MS medium supplemented with 0.01% activated charcoal, 2 mg/l BA, 0.1 mg/l IAA, 20% coconut water in combination with 3 and 4 g/l YE, respectively. The highest total phenolic contents of 78.21±3.06 and 80.66±3.59 mg GAE/g dry extract were observed when shoots were cultured on medium supplemented with 50 and 100 µM JA, respectively, which were not significantly different with those cultured on medium supplemented with 4 g/l YE or without elicitor. Shoots cultured on medium supplemented with 50 and 100 µM JA also contained the greatest DPPH radical scavenging activity of 17.94±0.46 and 18.98±0.44 µg/ml, respectively.

**Keywords:** *Dioscorea birmanica*, saponin, secondary metabolite, elicitor