

## **PROFIL METABOLIT SEKUNDER KALUS HASIL MIKROPROPAGASI TANAMAN CABAI PUYANG (*Piper retrofractum* Vahl.) SECARA IN VITRO**

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### **INTISARI**

Tanaman Cabe Puyang (*Piper retrofractum* Vahl.) merupakan golongan *Piperaceae* yang mengandung khasiat sebagai obat dan dapat dikembangkan dengan metode kultur jaringan. Selain itu, tanaman cabe puyang juga memiliki kandungan metabolit sekunder golongan alkaloid, flavonoid dan terpenoid. Permasalahan yang dihadapi, masih sedikit penelitian tentang metabolit sekunder menggunakan kalus tanaman cabe puyang yang dikembangkan dengan kultur jaringan. Sehingga, penelitian ini dilakukan dengan tujuan untuk mengetahui profil metabolit sekunder hasil perbanyakan kalus dengan variasi zat pengatur tumbuh pada media basal *Murashige and Skoog* (MS) secara *in vitro*. Induksi kalus secara *in vitro* dilakukan dengan eksplan daun tanaman cabe puyang. Eksplan daun tersebut, diinokulasikan pada media basal MS dengan variasi ZPT NAA, 2,4-D dan BA. Media yang paling berpengaruh bagi perbanyakan kalus dan produksi metabolit sekunder kalus adalah media MS + NAA:BA dengan konsentrasi 1 mg/L dan 2 mg/L serta MS + 2,4-D: BA 1 mg/L dan 0,5 mg/L dengan jumlah berat segar tertinggi dan waktu induksi kalus tercepat selama 26 hari. Kalus pada medium yang paling berpengaruh tersebut dikeringkan pada oven bersuhu 33 °C sampai menghasilkan berat kering yang konstan. Kalus kering, selanjutnya dilakukan ekstraksi dengan metode maserasi kemudian ditimbang beratnya dan ditambahkan pelarut dengan polaritas yang berbeda seperti kloroform, methanol dan ethanol absolute. Hasil ekstraksi kalus selanjutnya dilakukan uji metabolit sekunder alkaloid, flavonoid dan terpenoid dengan metode kromatografi lapis tipis dan menunjukkan hasil positif golongan senyawa alkaloid, flavonoid dan terpenoid.

**Kata Kunci:** Cabe Puyang (*Piper retrofractum* Vahl.), Kalus, Kromatografi Lapis Tipis, Medium *Murashige and Skoog*, Metabolit Sekunder.

## SECONDARY METABOLITE PROFILES ON IN VITRO MICROPROPAGATED CALLUS OF THE JAVANESE LONG PEPPER (*Piper retrofractum* Vahl.)

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### ABSTRACT

The Javanese Long pepper (*Piper retrofractum* Vahl.) belongs to the Piperaceae family which contains medicinal properties and can be developed using tissue culture methods. In addition, the long pepper plant also contains secondary metabolites of alkaloids, flavonoids, and terpenoids. The problem faced is that there is still little research on secondary metabolites using callus from the long pepper plant developed with tissue culture. Thus, this study was conducted to know the profile of secondary metabolites resulting from callus propagation with a variety of growth regulators on Murashige and Skoog (MS) basal media in vitro. Callus induction in vitro was carried out with leaf explants of the long pepper plant. The leaf explants were inoculated on MS basal media with variations of growth hormone regulators NAA, 2,4-D, and BA. The most influential media for callus propagation and production of callus secondary metabolites were MS + NAA:BA with concentrations of 1 mg/L and 2 mg/L and MS + 2,4-D:BA 1 mg/L and 0.5 mg/L. L with the highest amount of fresh weight and the fastest callus induction time was 26 days. The callus on the most influential medium was dried in an oven at 33 °C to produce a constant dry weight. Dry callus, then extracted by maceration method then weighed and added with solvents by different polarities such as chloroform, methanol, and ethanol absolute. The results of callus extraction were then tested for secondary metabolites of alkaloids, flavonoids, and terpenoids by thin-layer chromatography method and showed positive results for the alkaloid, flavonoid, and terpenoid compounds.

Keywords: Javanese Long Pepper (*Piper retrofractum* Vahl)., Callus, Murashige and Skoog, Secondary metabolites, Thin-layer Chromatography.