

PERTUMBUHAN KALUS DARI EKSPLAN HIPOKOTIL DAN KOTILEDON TANAMAN TOMAT (*Solanum lycopersicum* L.) “Marta”, “Permata”, DAN “Zamrud” DAN PRODUKSI METABOLIT SEKUNDERNYA

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INTISARI

Tomat (*Solanum lycopersicum* L.) merupakan salah satu tanaman yang banyak dikonsumsi di berbagai negara sebagai buah ataupun sayuran. Manfaat yang dimiliki oleh tomat antara lain: mampu mengobati penyakit demam, kelainan pencernaan, diabetes, obesitas, bahkan mampu menurunkan resiko kanker dikarenakan kandungan metabolit sekunder seperti terpenoid, senyawa fenolik, dan flavonoid. Metabolit sekunder dapat diproduksi melalui kultur kalus. Tujuan dari penelitian ini adalah untuk mengkaji pertumbuhan kalus tomat “Marta”, “Permata”, dan “Zamrud” dari organ hipokotil dan kotiledon, serta mendapatkan produk metabolit sekunder terpenoid, fenolik, dan flavonoid pada fase pertumbuhan yang ditemui. Induksi kalus dilakukan pada medium MS+2.4-D 2 ppm. Penentuan fase pertumbuhan menggunakan biomassa kalus. Selama 45 hari ditemukan fase lag, fase log, dan fase stasioner. Kalus fase log dan fase stasioner kemudian dianalisis kandungan metabolit sekunder dengan KLT dan pereaksi semprot. Senyawa fenolik menggunakan FeCl_3 , flavonoid menggunakan sitroborat, dan terpenoid menggunakan anisaldehyd asam sulfat. Metabolit sekunder yang dihasilkan oleh kalus pada fase log dan stasioner adalah fenolik, flavonoid dan terpenoid.

Kata kunci: Tomat “Marta”, “Permata”, “Zamrud”, kalus, fase log, fase stasioner, fenolik, flavonoid, terpenoid

THE GROWTH OF CALLUS FROM HYPOCOTYL AND COTYLEDON OF TOMATO PLANT (*Solanum lycopersicum* L.) “Marta”, “Permata”, and “Zamrud” AND ITS SECONDARY METABOLITES PRODUCTION

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ABSTRACT

Tomat (*Solanum lycopersicum* L.) is widely consumed in many countries as a fruit or vegetable. Many benefits is found by consuming tomato, such as: it capable to treat fever, digestive disorder, diabetes, obesity, and even lowering the risk of cancer because it contain secondary metabolites such as terpenoid, phenolic compound, and flavonoid. Secondary metabolites can be produced trough callus culture. The purposes of this research are to assess the growth of tomato callus “Marta”, “Permata”, “Zamrud” from hypocotyl and cotyledon, in order to get product of secondary metabolites, i.e. terpenoid, phenolic compound, and flavonoid in the growth phase encountered. For callus induction MS+ 2.4-D 2 ppm medium was used and biomass was used for determination of callus growth phases. During 45 days observation, the growth phases were: lag phase, log phase, and stationary phase. Callus on log phase and stationary phases were analyzed by TLC and spray reagent for qualitative analysis of secondary metabolites. Qualitative analysis was carried out for phenolic contain using FeCl₃, flavonoid using sitroboric acid, and terpenoid using anisaldehyde sulfuric acid. Secondary metabolites produced by callus during log phase and stationary phase were phenolic compound, flavonoid and terpenoid.

Keywords: Tomato “Marta”, “Permata”, “Zamrud”, callus, log phase, stationary phase, phenolic compound, flavonoid, terpenoid