

**Lusky Andriana, 2019, Pengaruh Rasio Amonium dan Nitrat sebagai Sumber Nitrogen terhadap Biomassa dan Kadar Saponin pada Akar Adventif Ginseng Jawa (*Talinum paniculatum*) dalam Media Solid secara *In Vitro*, SKRIPSI ini di bawah bimbingan Prof. Dr. Yosephine Sri Wulan Manuhara, M.Si. dan Prof. H. Hery Purnobasuki, M.Si., Ph.D., Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.**

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## ABSTRAK

Ginseng jawa merupakan salah satu tanaman obat yang sering digunakan masyarakat Indonesia sebagai tonikum, afrodisiak atau obat kuat, batuk, radang paru-paru, diare, haid tidak teratur, keputihan, diabetes, untuk suplemen makanan dan dapat memperbanyak air susu ibu karena tanaman ini mengandung beberapa senyawa metabolit sekunder antara lain saponin, flavonoid, tanin, dan steroid. Pertumbuhan akar ginseng jawa di habitat asli membutuhkan waktu sekitar 2—3 tahun, sehingga diperlukan cara untuk mempercepat pertumbuhan ginseng jawa melalui teknik kultur jaringan tanaman. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian rasio amonium dan nitrat sebagai sumber nitrogen terhadap biomassa dan kadar saponin akar adventif *Talinum paniculatum*. Eksplan daun urutan ke-2 dan ke-3 dari pucuk tanaman ditumbuhkan dalam media MS dengan pemberian rasio amonium dan nitrat pada berbagai konsentrasi yaitu 21:19 mM sebagai kontrol, 0:30 mM, 10:20 mM, 15:15 mM, 20:10 mM, dan 30:0 mM. Kadar saponin diukur dengan Kromatografi Lapis Tipis. Data dianalisis menggunakan uji T-Test, uji Mann-Whitney, dan ANOVA. Hasil penelitian menunjukkan bahwa rasio amonium dibanding nitrat 10:20 mM merupakan perlakuan terbaik dengan diperoleh rerata berat segar  $73,6 \pm 32,5$  mg dan rerata berat kering  $8,2 \pm 3,2$  mg. Total kadar saponin tertinggi diperoleh dari rasio amonium dan nitrat 10:20 mM.

**Kata kunci :** Amonium, ginseng jawa, nitrat, saponin.

**Lusky Andriana, 2019, Effect of the Ratio of Ammonium and Nitrate as a Source of Nitrogen to Biomass and Saponin Levels in Adventitious Roots of Javanese Ginseng (*Talinum paniculatum*) in In Vitro Solid Media, The Advisor of this final project is Prof. Dr. Yosephine Sri Wulan Manuhara, M.Si. and Prof. H. Hery Purnobasuki, M.Si., Ph.D., Departement of Biology, Faculty of Science and Technology, Airlangga University, Surabaya.**

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## ABSTRACT

Javanese ginseng is one of the medicinal plants that is often used by Indonesian people as a tonic, aphrodisiac or strong medicine, cough, pneumonia, diarrhea, irregular menstruation, vaginal discharge, diabetes, for food supplements and can increase breast milk because these plants contain some secondary metabolites include saponins, flavonoids, tannins, and steroids. The growth of Javanese ginseng root in native habitat takes about 2—3 years, so we need a way to accelerate the growth of Javanese ginseng through plant tissue culture techniques. This study aims to determine the effect of the ratio of ammonium and nitrate as a source of nitrogen to biomass and levels of adventitious root saponins of *Talinum paniculatum*. The second and third order leaf explants of shoots were grown in MS media by giving a ratio of ammonium and nitrate at various concentrations of 21:19 mM as a control, 0:30 mM, 10:20 mM, 15:15 mM, 20 : 10 mM, and 30: 0 mM. Saponin levels were measured by Thin Layer Chromatography. Data were analyzed using T-Test, Mann-Whitney test, and ANOVA test. The results showed that the ratio of ammonium to nitrate 10:20 mM was the best treatment with a mean fresh weight of  $73.6 \pm 32.5$  mg and a mean dry weight of  $8.2 \pm 3.2$  mg. The highest total saponin content was obtained from the ratio of ammonium and nitrate 10:20 mM.

**Keywords :** Ammonium, Javanese ginseng, nitrate, saponins.