EFEKTIVITAS PENGGUNAAN MACAM NUTRISI DAN JENIS MEDIA TANAM TERHADAP PERTUMBUHAN DAN HASIL TANAMAN TOMAT (*Solanum lycopersicum* L.) SECARA HIDROPONIK SUBSTRAT

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ABSTRAK

Tomat merupakan tanaman hortikultura yang dapat dibudidayakan secara hidroponik. Keberhasilan budidaya tomat secara hidroponik dipengaruhi oleh nutrisi dan media tanam. Penggunaan nutrisi organik dalam hidroponik masih terbatas. Penelitian ini bertujuan memperoleh formula nutrisi organik yang efektif untuk pertumbuhan dan hasil tanaman tomat. Penelitian merupakan percobaan lapangan dalam *greenhouse*, Bulan Desember 2025 – April 2026 di Dusun Jayan, Sleman, Yogyakarta menggunakan rancangan petak terbagi, 2 faktor. Faktor pertama macam nutrisi yaitu AB Mix, POC A (lamtoro, bonggol pisang, cangkang telur, sabut kelapa, lidah buaya, kotoran kambing), dan POC B (ampas tahu, buah mengkudu, cangkang telur, kulit nanas, buah maja, kotoran ayam). Faktor kedua jenis media yaitu *cocopeat* dan arang sekam. Setiap perlakuan diulang 4 kali. Data dianalisis menggunakan Sidik Ragam 5% dan dilanjutkan dengan Uji DMRT 5%. Hasil menunjukkan POC A menghasilkan tinggi tanaman dan diameter batang terbaik umur 49 HST, serta bobot buah terbesar. Media arang sekam menghasilkan bobot buah tertinggi. Terdapat interaksi antara jenis nutrisi dan media tanam terhadap tinggi tanaman 21 dan 35 HST, diameter batang 21 HST, jumlah buah dan bobot buah tanaman, serta bobot buah per hektar. POC A pada media arang sekam menghasilkan jumlah dan bobot buah masing-masing 117,63% dan 144,18% lebih besar dibandingkan AB Mix.

Kata Kunci: *Tomat, nutrisi organik, hidroponik substrat*

EFFECTIVENESS OF USING DIFFERENT TYPES OF NUTRIENTS AND GROWING MEDIA ON THE GROWTH AND YIELD OF TOMATO PLANTS (*Solanum lycopersicum* L.) IN HYDROPONIC SUBSTRATE

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ABSTRACT

Tomato is a horticultural crop that can be cultivated hydroponically. The success of hydroponic tomato cultivation is influenced by nutrient composition and growing media. The use of organic nutrients in hydroponic cultivation remains limited. This study aimed to obtain an effective organic nutrient formulation for the growth and yield of tomato plants. The research was conducted as a field experiment in a greenhouse from December 2025 to April 2026 in Jayan Hamlet, Sleman, Yogyakarta, using a split-plot design with two factors. The first factor was the type of nutrient solution, consisting of AB Mix, Organic Liquid Fertilizer (OLF) A (leucaena leaves, banana corm, eggshells, coconut coir, aloe vera, and goat manure), and OLF B (soybean pulp, noni fruit, eggshells, pineapple peel, maja fruit, and chicken manure). The second factor was the planting medium, consisting of cocopeat and rice husk charcoal. Each treatment was replicated four times. Data were analyzed using analysis of variance (ANOVA) at the 5% significance level, followed by Duncan's Multiple Range Test (DMRT) at the 5% significance level. The results showed that OLF A produced the greatest plant height and stem diameter at 49 days after transplanting (DAT), as well as the highest fruit weight. Rice husk charcoal produced the highest fruit weight. Significant interactions between nutrient type and planting medium were observed for plant height at 21 and 35 DAT, stem diameter at 21 DAT, number of fruits per plant, fruit weight per plant, and fruit yield per hectare. OLF A combined with rice husk charcoal increased the number of fruits and fruit weight by 117.63% and 144.18%, respectively, compared with AB Mix.

Keywords: *Tomato, organic nutrient, substrate hydroponics*