

## INTISARI

### **PENGARUH ALELOPATI TEKI (*Cyperus rotundus* L.) TERHADAP PERTUMBUHAN DAN HASIL KACANG PANJANG (*Vigna unguiculata* (L.) subsp. *sesquipedalis*)**

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Kacang panjang (*Vigna unguiculata* (L.) subsp. *sesquipedalis*) merupakan sayuran bernilai ekonomi tinggi dan potensial dikembangkan di Indonesia. Produksi kacang panjang di Indonesia mengalami penurunan sejak tahun 2015 hingga 2019, salah satu penyebabnya adalah cekaman alelopati teki (*Cyperus rotundus* L.). Penelitian ini bertujuan mengetahui pengaruh daya hambat ekstrak teki terhadap pertumbuhan dan hasil kacang panjang. Percobaan lapangan dilaksanakan pada bulan Januari – April 2022 di *Screen House* Pusat Inovasi Agroteknologi (PIAT UGM), Yogyakarta. Percobaan dilakukan mengikuti kaidah rancangan acak kelompok lengkap (RAKL) dengan 4 blok sebagai ulangan dengan menggunakan varietas kacang panjang Kanton Tavi. Konsentrasi ekstrak teki sebagai perlakuan terdiri dari 0 g/L (kontrol=air), 40 g/L, 80 g/L, dan 120 g/L. Ekstrak teki dikocorkan pada media tanam menggunakan gelas ukur dengan volume 150 ml per tanaman setiap kali penyiraman, pada umur tanaman 14 HST, 28 HST, dan 49 HST sesuai konsentrasi perlakuan. Pengamatan dilakukan pada variabel lingkungan, pertumbuhan, dan hasil tanaman. Data dianalisis variansnya pada taraf alfa 0,05, diikuti uji lanjut HSD Tukey untuk variabel-variabel yang menunjukkan beda nyata. Hasil penelitian menunjukkan bahwa ekstrak alelopat teki memberikan pengaruh terhadap pertumbuhan dan hasil kacang panjang. Semakin tinggi konsentrasi ekstrak alelopati teki (*Cyperus rotundus* L.) akan menurunkan tinggi tanaman, jumlah daun, diameter batang, bobot segar akar dan daun, bobot kering akar, tajuk, dan daun, luas permukaan akar, diameter polong, bobot 10 biji, rasio akar/tajuk, bobot daun khas, dan laju asimilasi bersih. Daya hambat konsentrasi ekstrak alelopati teki (*Cyperus rotundus* L.) mempengaruhi hasil kacang panjang. Pada konsentrasi ekstrak alelopati teki 40 g/L mengalami penurunan hasil sebesar 48,8 %, konsentrasi ekstrak alelopati teki 80 g/L mengalami penurunan hasil sebesar 56,7 %, dan pada konsentrasi tertinggi yaitu 120 g/L mengalami penurunan hasil sebesar 57,4 %. Tingkat konsentrasi ekstrak alelopati teki (*Cyperus rotundus* L.) yang mulai menghambat pada pertumbuhan dan hasil tanaman kacang panjang adalah 80 g/L dan 120 g/L.

Kata kunci : alelopati, *Cyperus rotundus* L., ekstrak teki, kacang panjang

## ABSTRACT

### ALLELOPATHIC EFFECT OF PURPLE NUTSEDGE (*Cyperus rotundus* L.) ON GROWTH AND YIELD OF YARD LONG BEAN (*Vigna unguiculata* (L.) subsp. *sesquipedalis*)

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Long beans (*Vigna unguiculata* (L.) subsp. *sesquipedalis*) is a high economic vegetable commodity which potential to develop in Indonesia. The production of long bean in Indonesia has decreased from 2015 to 2019. One of the reasons that caused the decreasing production is allelopathic suppression. This study aims to determine the effect of purple nutsedge suppression on the growth and yield of long beans. The experimental field was carried out in January – April 2022 at the *Screen House* of the Pusat Inovasi Agroteknologi (PIAT) UGM, Yogyakarta. The experiment was carried out following the procedures of a Completely Randomized Block Design (RCBD) with 4 blocks as replication by using Kanton Tavi variety. The concentration extract of the purple nutsedge as treatment consisted of 0 g/l (control=water), 40 g/l, 80 g/l, and 120 g/l. The extract was applied by pouring it directly onto the growing media using a measuring cup of 150 ml per plant for each watering at the plant age of 2 WAP, 4 WAP, and 6 WAP. Observations focused on variables of environment, growth, and plant yields. The quantitative data were analyzed for variance at the 5% level, followed by the Tukey HSD further test at the 5% level for the variables that showed significant differences. The results showed that the allelopathic purple nutsedge suppression reduce growth and yield of long beans. The higher the concentration of allelopathic extract of purple nutsedge (*Cyperus rotundus* L.) give the heavier suppression and reduce plant height, number of leaves, stem diameter, fresh weight of roots and leaves, dry weight of roots, shoots, and leaves, root surface area, pod diameter, weight of 10 seeds, ratio root/shoot, typical leaf weight, and net assimilation rate. The inhibition of the allelopathic extract of purple nutsedge (*Cyperus rotundus* L.) affected the yield of long beans. At the concentration of allelopathic extract of purple nutsedge 40 g/L, the yield decreased by 48,8%, at the concentration of the allelopathic extract 80 g/L, the yield decreased by 56,7%, and at the highest concentration of 120 g/L, the yield decreased by 57,4%. The 80 g/L concentration extract of purple nutsedge starts to inhibit growth and yield of long bean.

Key words: allelopathy, *Cyperus rotundus* L., extract purple nutsedge, long beans