

ABSTRAK

ANALISIS RESISTENSI GULMA *Asystasia gangetica*, *Eleusine indica* DAN *Praxelis clematidea* TERHADAP HERBISIDA PARAQUAT DI PERKEBUNAN KELAPA SAWIT TANAMAN MENGHASILKAN (TM) LAMPUNG SELATAN

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Keberadaan gulma pada perkebunan kelapa sawit tanaman menghasilkan (TM) dapat menurunkan produktivitas akibat persaingan dalam memperoleh air, unsur hara, dan cahaya. Pengendalian gulma umumnya menggunakan herbisida paraquat yang bersifat kontak non-selektif, namun penggunaan berulang berpotensi menyebabkan resistensi. Penelitian ini bertujuan untuk mengetahui tingkat resistensi gulma *Asystasia gangetica*, *Eleusine indica*, dan *Praxelis clematidea* terhadap paraquat 276 SL di perkebunan kelapa sawit TM Lampung Selatan serta menentukan nilai LT_{50} , ED_{50} , dan nisbah resistensi. Penelitian dilakukan menggunakan rancangan acak kelompok (RAK) dengan delapan taraf dosis paraquat, yaitu 0, 69, 138, 276, 552, 1104, 2208, dan 4416 g/ha dan asal gulma yang terpapar dan tidak terpapar paraquat lebih dari 10 tahun. Penelitian terdiri atas dua tahap, yaitu Uji Pendahuluan (Tahap 1) dan Uji Respon Dosis (Tahap II). Pengamatan meliputi persen kematian, bobot kering gulma untuk mengetahui nilai LT_{50} , ED_{50} , dan nisbah resistensi. Hasil menunjukkan bahwa nilai LT_{50} gulma terpapar paraquat lebih tinggi dibandingkan gulma tidak terpapar. Nilai ED_{50} gulma terpapar juga lebih tinggi dibandingkan gulma tidak terpapar, yaitu pada *Asystasia gangetica* sebesar 130,27 dan 50,35 g/ha dengan nisbah resistensi 2,59, *Eleusine indica* sebesar 406,76 dan 106,53 g/ha dengan nisbah resistensi 3,82 serta *Praxelis clematidea* sebesar 88,66 dan 63,27 g/ha dengan nisbah resistensi 1,18. Berdasarkan nilai nisbah resistensi, *Asystasia gangetica* dan *Eleusine indica* tergolong resistensi rendah terhadap paraquat, sedangkan *Praxelis clematidea* tergolong sensitif. Secara keseluruhan, gulma yang terpapar paraquat menunjukkan peningkatan toleransi sehingga diperlukan pengelolaan gulma terpadu untuk mencegah perkembangan resistensi.

Kata kunci: resistensi, herbisida, paraquat diklorida, gulma, kelapa sawit.

ABSTRACT

RESISTANCE ANALYSIS OF WEEDS *Asystasia gangetica*, *Eleusine indica*, AND *Praxelis clematidea* TO PARAQUAT HERBICIDE IN MATURE OIL PALM PLANTATIONS (TM) IN SOUTH LAMPUNG

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*The presence of weeds in mature oil palm plantations (TM) can reduce productivity due to competition for water, nutrients, and light. Weed control is commonly carried out using paraquat, a non-selective contact herbicide; however, its repeated use may lead to the development of herbicide resistance. This study aimed to determine the resistance levels of *Asystasia gangetica*, *Eleusine indica*, and *Praxelis clematidea* to paraquat 276 SL in mature oil palm plantations in South Lampung and to evaluate LT_{50} , ED_{50} , and resistance ratio (RR) values. The experiment was arranged in a Randomized Complete Block Design (RCBD) with eight paraquat doses, namely 0, 69, 138, 276, 552, 1104, 2208, and 4416 g ha⁻¹, using weed populations exposed and unexposed to paraquat for more than 10 years. The study consisted of two stages: a Preliminary Test (Stage I) and a Dose-Response Test (Stage II). Observations included percentage of injury and weed dry weight to determine LT_{50} , ED_{50} , and resistance ratio values. The results showed that LT_{50} values of paraquat-exposed weed populations were higher than those of unexposed populations. Likewise, ED_{50} values of exposed populations were higher than those of unexposed populations, namely 130.27 and 50.35 g ha⁻¹ for *Asystasia gangetica* (RR = 2.59), 406.76 and 106.53 g ha⁻¹ for *Eleusine indica* (RR = 3.82), and 88.66 and 63.27 g ha⁻¹ for *Praxelis clematidea* (RR = 1.18). Based on resistance ratio values, *Asystasia gangetica* and *Eleusine indica* were classified as having low-level resistance to paraquat, whereas *Praxelis clematidea* remained susceptible. Overall, paraquat-exposed weed populations exhibited increased tolerance to paraquat, indicating the need for integrated weed management strategies to prevent further resistance development.*

Keywords: resistance, herbicide, paraquat dichloride, weeds, palm oil