

ABSTRACT

Nathania Asih Kuncoro Putri

**DETERMINANT FACTORS DISRUPTING *CHOLINESTERASE*
ENZYME ACTIVITY IN THE BLOOD OF SHALLOT SPRAYING
FARMERS**

**(Case Study of Shallot Spraying Farmers in Bungur Village, Sukomoro
District, Nganjuk Regency, 2024)**

(xvi + 66 Pages + 3 Figures + 21 Tables + 9 Appendices)

Farmers used pesticides to protect their crops from Plant Pest Organisms (PPO). However, high-frequency use of pesticides led to poisoning and affected farmers' blood levels of cholinesterase enzyme. This study aims to analyze the determining factors that disrupted the function of the cholinesterase enzyme in the blood of shallot sprayer farmers in Bungur Village, Sukomoro District, Nganjuk Regency, in 2024.

This observational study used a cross-sectional design. The independent variables in this study are type of pesticide, age, years of service, frequency of spraying, education, knowledge, and water intake. In contrast, the dependent variable was the cholinesterase enzyme in the blood. The study population consisted of 38 shallot sprayer farmers, with a sample of 33 randomly selected. Data collection methods included observation, interviews, and laboratory examination of cholinesterase enzyme levels in the blood, analyzed statistically used the Chi-Square test ($\alpha = 0.05$).

The results of the study showed that the variables significantly affecting cholinesterase enzyme levels were the type of pesticide (p-value = 0.000; OR = 42.750), years of service (p-value = 0.035; OR = 5.333), frequency of spraying (p-value = 0.004; OR = 16.875), education (p-value = 0.000; OR = 24.500), and water intake (p-value = 0.031; OR = 6.222), while age (p-value = 0.062; OR = 4.375) and knowledge (p-value = 0.053; OR = 5.200) were not related to cholinesterase enzyme levels.

Suggestions for future research included further investigating the effects of high pesticide spraying on the yield of shallot crops.

Keywords: *Cholinesterase* Enzyme, Pesticides, Shallot Farmers

References: 39 (35 journals, four books)

ABSTRAK

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FAKTOR DETERMINAN PENGGANGGU KERJA ENZIM *CHOLINESTERASE* DALAM DARAH PETANI PENYEMPROT BAWANG MERAH

**(Studi Kasus Petani Penyemprot Bawang Merah Di Desa Bungur,
Kecamatan Sukomoro, Kabupaten Nganjuk Tahun 2024)
(xvi + 66 Halaman + 3 Gambar + 21 Tabel + 9 Lampiran)**

Para petani memakai pestisida untuk menjaga hasil pertanian dari gangguan Organisme Pengganggu Tanaman (OPT). Penggunaan pestisida dengan frekuensi tinggi bisa mengakibatkan keracunan dan mempengaruhi kadar enzim *cholinesterase* dalam darah petani. Studi ini bertujuan guna menganalisis apa yang menjadi faktor determinan pengganggu kerja enzim *cholinesterase* dalam darah petani penyemprot bawang merah di Desa Bungur, Kecamatan Sukomoro, Kabupaten Nganjuk Tahun 2024.

Jenis studi ini observasional dengan Desain *cross sectional*. Variabel bebas pada studi ini yakni jenis pestisida, usia, masa kerja, frekuensi penyemprotan, pendidikan, pengetahuan dan asupan air minum, sedangkan variabel terikatnya yakni enzim *cholinesterase* dalam darah. Populasi studi ini sebanyak 38 petani penyemprot bawang merah dengan jumlah sampel 33 petani yang diambil secara undian. Pengambilan data menggunakan observasi, wawancara, dan pemeriksaan laboratorium kadar enzim *cholinesterase* dalam darah serta dianalisis statistik dengan uji *Chi-Square* ($\alpha = 0,05$).

Temuan studi menunjukkan variabel – variabel yang berpengaruh signifikan dengan kadar enzim *cholinesterase* yakni, jenis pestisida (p value = 0,000 ; OR = 42,750), masa kerja (p value = 0,035 ; OR = 5,333), frekuensi penyemprotan (p value = 0,004 ; OR = 16,875), pendidikan (p value = 0,000 ; OR = 24,500), dan asupan air minum (p value = 0,031 ; OR = 6,222) sedangkan usia (p value = 0,062 ; OR = 4,375) dan pengetahuan (p value = 0,053 ; OR = 5,200) tidak berhubungan dengan kadar enzim *cholinesterase*.

Saran bagi penelitian selanjutnya yakni meneliti lebih lanjut tentang efek penyemprotan pestisida yang tinggi terhadap hasil produk pertanian bawang merah.

Kata kunci : Enzim *Cholinesterase*, Pestisida, Petani Bawang Merah

Daftar Pustaka : 39 (35 jurnal, 4 buku)