

ABSTRACT

The improper use of pesticides can have a negative impact on users, such as cardiovascular disorder, central nervous system disorder, make a disturbance of pregnancy, and other impacts. Vegetable farmers in the Province of Bali is still using minimal PPE while worked with a lot of chemical pesticides, especially organophosphates to protect their agriculture from pest attacks. The accumulation of pesticides, especially organophosphates in human body as result of daily use of pesticides, can be determined by examining the level of cholinesterase in blood. Pesticides can bind to cholinesterase in the blood and make the cholinesterase rate will be decrease in the blood system. Cholinesterase has a function to regulate the performance of the nervous system. If cholinesterase is bound, this enzyme cannot continue sending orders to certain muscles. The research was conducted at the PRAMITA Denpasar Laboratory from October 2022 to May 2023. The test results found that 7 out of 20 blood samples had cholinesterase levels under the normal values which indicates poisoning of organophosphates. Fisher's test results show the relationship of using PPE with clinical symptoms in vegetable farmers in Bali Province is significant and relationship between using PPE with clinical symptoms in vegetable farmers in Bali Province also significant. In addition, the Fisher's Exact statistical test also showed that there is a significant relationship between the use of PPE and cholinesterase level in vegetable farmers in Bali Province.

Keywords : *Organophosphates, PPE, Clinical Symptoms, Cholinesterase*

ABSTRAK

Petani sayur di Provinsi Bali masih banyak yang menggunakan APD seadanya walaupun menggunakan pestisida berbahan kimia khususnya organofosfat untuk menjaga pertaniannya dari serangan hama. Akumulasi pestisida khususnya organofosfat di dalam tubuh manusia akibat dari penggunaan pestisida setiap harinya dapat diketahui melalui pemeriksaan kadar *cholinesterase* dalam darah. Pestisida dapat berikatan dengan *cholinesterase* dalam darah sehingga kadar *cholinesterase* di dalam darah akan menurun. *Cholinesterase* memiliki fungsi untuk mengatur kinerja sistem saraf. Jika *cholinesterase* terikat, maka enzim ini tidak dapat meneruskan pengiriman perintah pada otot-otot tertentu. Penelitian dilakukan di Laboratorium PRAMITA Denpasar dari bulan Oktober 2022 hingga Mei 2023. Hasil uji ditemukan bahwa 7 dari 20 sampel darah memiliki kadar *cholinesterase* di bawah normal yang menandakan terjadinya keracunan pestisida organofosfat. Hasil uji *Fisher's Exact* menunjukkan adanya hubungan signifikan pada riwayat penggunaan APD dan gejala klinis pada petani sayur di Provinsi Bali. Selain itu, diketahui adanya hubungan signifikan pada APD dengan kadar *cholinesterase* petani sayur di Provinsi Bali.

Kata kunci : Organofosfat, APD, Gejala klinik, Cholinesterase.