ABSTRACT

The Effect of Organophosphate Pesticide Exposure on Levels of Cholinesterase Enzyme and Hematology Abnormalities Parameters on Makmur Abadi Apples Plantation Spraying Farmer's Group in Tulungrejo village of Bumiaji subdistrict Batu

Organophosphate is the most widely used synthetic pesticide groups in Indonesia. Organophosphorus compound is most commonly associated with poisoning in human, accounting for more than 80% illness is caused by pesticides. In Indonesia, Pelita III recorded 1,710 cases of acute poisoning with 9.29% CFR. In the first 3 years of Pelita 4, 889 cases of acute poisoning with 8.21% CFR and sub-acute toxicity ranged between 42-50% of those exposed. The purpose of this study analyzed the effect of organophosphate pesticide exposure on levels of cholinesterase serum and hematology abnormalities parameters on apples plantation sprayer farmer.

This was an analytic study design, based on its time used cross-sectional study design. The data was collected by laboratory tests, observation and interviews. The sample selection was done by simple random sampling of 23 exposed and 23 comparisons.

The result showed that inappropriate dose (p value = 0.002), frequency of spraying (p value = 0.017) and body position of spraying (p value = 0.001) significantly affected cholinesterase serum levels. Low toxicity (p value = 0.028), moderate toxicity (p value = 0.042) and employment duration (p value = 0.031) significantly affected WBC levels.

The conclusion showed that pesticides exposure which affected cholinesterase serum levels and hematology parameters were pesticide dose, frequency of spraying, pesticide toxicity and work duration of one day. There should be a training, advice and guidance regarding good and correct application of pesticides along with farmer's health check.

Keywords: pesticides exposure, cholinesterase serum, and hematology parameters