The Effect of Soil Submersion and Conditioner Materials on Residual Organophosphate Pesticides in Soil and Shallot Bulbs

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Abstract	Soil health decreases and residual pesticides increase due to the application of inorganic fertilizers and pesticides continuously during the cultivation of crops. The effect of 12 hours or 24 hours soil submersion and chicken litters or zeolite application before planting on residual pesticides in soil and bulbs of shallots (Allium ascalonicum L.) are studied. Samples of soils and bulbs have proceeded after shallot cultivation conducted in Brebes, Indonesia. Then organophosphate residues in the samples are analyzed using gas chromatography in the Laboratory of the Indonesian Agricultural Environment Research Institute, Bogor. The data are compared to the standard of maximum residue levels (MRL) of pesticides in agricultural products. Results show that residual pesticides in treated soils are below the detection limit of the GC equipment, except malathion is detected with values ranging from 0.039-0.050 ppm. However, residual organophosphate pesticides in the bulbs are mainly below the maximum residue levels. The only exception is chlorpyrifos which has a value above the maximum residue levels of pesticides (0.076 ppm). Farmers should be educated in integrated pest management and applying synthetic pesticides as the last option for controlling pests and diseases.
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