

***STUDY OF HEAVY METAL CONTENT OF Cd AND Pb IN RICE FIELD
IRRIGATED BY THE WINONGO RIVER WATER***

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ABSTRACT

Human activities greatly influence river water quality. Rivers are a place where various pollution occurs, including heavy metal pollution such as cadmium and lead. Heavy metal pollution problems can come from industrial, agricultural, and domestic waste. One of the heavy metal pollution occurs in the Winongo River. The purpose of this study was to determine the content of heavy metals cadmium and lead in rice fields that are irrigated by the Winongo River. The method used is the survey method. Determination of sample points was carried out by purposive sampling based on the river section, namely upstream and downstream. The study was conducted at two locations of the Winongo River irrigation flow, precisely in the Sleman District as the upstream and Kasihan District as the downstream. The sample points consisted of 3 samples of rice field soil, 3 samples of rice plants, and 2 samples of irrigation water at each location. The results showed that the content of cadmium and lead in irrigation water ranged from 0.002 - 0.0081 ppm and 0.0021- 0.0187 ppm, respectively, these values are still below the standard quality threshold. In rice fields, the cadmium content reaches 1.12 - 4.46 ppm and the lead content is 12.4 - 21 ppm. This cadmium content exceeds the standard quality threshold, while the lead content is still below the threshold. In rice plants, the cadmium and lead content ranges from 0.37 - 1.91 ppm and 2.78 - 5.23 ppm respectively. The values of these two metals have exceeded the standard quality threshold.

Keywords: Cadmium, Heavy Metal, Lead, Winongo River