

**MEASUREMENT THE LEVEL OF PHYSICOCHEMICAL
PARAMETER AND HEAVY METALS CONTENTS IN
THE AGRICULTURAL SURFACE WATER**

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ABSTRACT

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Only 1% from 70% of water that found on the Earth can be accessed directly by human for their consumption. However, modern agriculture practices may indirectly be one of the main surface water pollution source. There are two major types of sources of pollution that can be related to the agriculture practices which are point source pollution and non-point source (NPS) pollution. The aims of this study were to measure the level of physicochemical parameters and heavy metals contents in agricultural surface water samples and to classified the quality of water by using National Water Quality Standards (NWQS) and water quality index (WQI). Two sites were chosen as sampling locations which are Lubuk Yu and Lubuk Ujid, representing the agricultural surface water samples. For each site, the water samples were collected at three sampling points which was at a distance of 25 m. All the samples were measured for their *in-situ* and *ex-situ* physicochemical parameters and were followed standard methods. However, heavy metals contents in water sample were analysed using ICP-OES. The results for the level of physicochemical parameter obtained in this study shows that the both surface water samples can be classified in Class I where the water can be used for any purposes without major water treatment, except for DO level. The Fe was the highest metal concentration found in both water samples with 475 and 230 mg/L respectively. The concentration of heavy metals measured in this study follow the order of $Fe > Zn > Mn > Pb > Ni > Cu > Cr = Cd$ for Lubuk Yu and $Fe > Zn > Mn > Pb = Ni > Cu > Cr = Cd$ for Lubuk Jek. The water quality index, WQI for the Lubuk Yu and Lubuk Jek water samples were measured as 84 and 82 respectively and the water can be classified into Class II. The results indicated the both surface waters were clean, suitable to be as a recreation center for local and tourists, and also can be used as a water supply after minor treatment.

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