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Pollution Potentials of Cassava-Waste Effluent

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Abstract

An investigation was carried out on the effects of cassava waste effluent on the pollution of adjacent surface and underground water (well) water sources. Effluents were collected from six cassava processing sites located at Tanke, Amilegbe, Lajonrin, Oyun, Agbo-Oba and Oko-Erin areas within Ilorin metropolis, Kwara State, Nigeria, during the 2004 Rainy Season (August to October 2004) and the 2004/2005 Dry Season (November 2004 to March 2005). Physical and chemical properties of the effluent were compared with those recommended by the World Health Organisation (WHO, 1993) standards for drinking water. Results show that some parameters like colour, turbidity, pH and cyanide exceeded WHO (1993) limits. For colour, the least value of 15.5 mg l^{-1} obtained was higher than the limit of 15.0 mg l^{-1} set by WHO (1993) standards, while for turbidity the range of values obtained (5.0 to 6.9 NTU) exceeded 5.0 NTU recommended by WHO (1993) standards. The values of pH were found to be between 4.2 to 6.4 (highly acidic) which is far below 6.5 to 8.5 recommended by WHO (1993). The cyanide content ranged from 0.1 to 2.8 mg l^{-1} was also above 0.1 mg l^{-1} set by WHO (1993). The pollution potentials of cassava waste effluent were found to be higher during the dry season than during the rainy season. Lower values were recorded for underground (well) samples than for surface samples because of the effect of underground seepage. The study shows that cassava waste effluent, if untreated, poses a great danger as far as the pollution of surface and underground water sources is concerned in the country. The Federal Government through the Federal Environmental Agency (FEPA) ensured that cassava waste effluent is properly treated before they are released to our water bodies.

Keywords: Cassava waste effluent, physical and chemical properties, pollution potentials, surface water, underground, well