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A study on the effects of cassava processing wastes on the soil environment of a local cassava mill

Odesiri Eruteyan Eunice[1] and **Obueh Henrietta**[2]
[1]Federal University of Petroleum Resources, Nigeria
[2]College of Education, Nigeria

This study examines the effects of cassava processing wastes on the soil environment of a local cassava mill in Ekiadolor, Ovia North East Local Government Area of Edo State, Nigeria. Microbial, physicochemical and mineral compositions of fresh cassava effluent, cassava effluent from waste pit, soil around the cassava mill (soil 1) and soil samples 100 m away from the mill (the control, soil 2) were determined. Soil 2 had the highest microbial count of 3.52×105 cfu/ml. The microbial species isolated included *Klebsiella aerogenes, Bacillus subtilis, Lactobacillus plantarum, Staphylococcus aureus, Lactobacillus delbrueckii, Fusarium solani, Aspergillus niger and Saccharomyces cerevisiae*. The occurrence of the isolated microorganisms was lowest in soil 1 with 37.5%. Fresh cassava effluent was the most acidic with pH 3.2 and cassava effluent from waste pit had the highest cyanide content of 53.52 mg/l. The mineral contents (Ca, Mg, Na and K) of the fresh cassava effluent, effluent from waste pit and soil 1 were significantly lower ($p<0.05$) than the control. The heavy metals (Fe, Zn, Mn, Al, Pb and Cu) were significantly higher in soil 1 when compared with soil 2. Nitrate and phosphate contents were high in all the samples except the control. The continuous disposal of the cassava processing wastes in the soil environment around the mill and into a waste pit has reduced the soil quality leading to environmental degradation.

Biography

Odesiri Eruteyan Eunice is a PhD student of Environmental and Public Health Microbiology at the University of Benin, Benin City, Edo State, Nigeria. She had taught Biology at the Delta State College of Physical Education for eleven years and has published over 15 papers in reputed journals. She is presently a lecturer in the Department of Environmental Management and Toxicology at the Federal University of Petroleum Resources, Effurun, Delta State, Nigeria.

odesiri.e.eunice@gmail.com
hettyobueh72@yahoo.com

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