



Preparation of Silica from Cassava Periderm

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Authors: Adepoju, A. D.; Adebisi, J. A.; Odusote, J. K.; Ahmed, I. I.; Hassan, S. B.**Source:** The Journal of Solid Waste Technology and Management, Volume 42, Number 3, August 2016, pp. 216-221(6)**Publisher:** The Journal of Solid Waste Technology and Management**DOI:** <https://doi.org/10.5276/JSWTM.2016.216>**Abstract**

References



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Suggestions

Cassava peel is a substantial by-product of cassava processing and it constitutes about 13% of the crop. Cassava peel is still currently considered a waste often discarded into the environment indiscriminately, and therefore economically underutilized. In the present work, silica was synthesized from cassava periderm via sol gel route. Cassava periderm was burnt at 600 °C to obtain Cassava Periderm Ash (CPA) prior to alkaline leaching of the silica content which was thereafter precipitated with acid. The silica aquagel was then prepared by pH controlled titration and aging, and followed by drying to form silica. Quantitative analysis showed that silica yield from CPA was 61.53%. The morphology, elemental composition and phases of the silica were investigated with SEM, EDX and XRD respectively. SEM revealed that silica particles are small but not uniform. The EDX compositional analysis confirmed the presence of Si silicon among others present. The Sherrer's equation used to evaluate the particle size showed that the average particle size of the silica was 62.69 nm. The silica obtained could be used as desiccant in the laboratory, and industrially, as filler for polymer composites and feedstock for production of silicon used in the manufacture of solar panel.

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