

Microbial Evaluation of Geophagic and Cosmetic Clays from Southern and Western Nigeria: Potential Natural Nanomaterials

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Abstract : Geophagic and cosmetic clays are among potential nano-material which occur naturally and are of various forms. The use of these nano-clays is a common practice in both rural and urban areas mostly due to tradition and medicinal reasons. These naturally occurring materials can be valuable sources of nano-material by serving as nano-composites. The need to ascertain the safety of these materials is the motivation for this research. Physical Characterization based on the hue value and microbiological qualities of the nano-clays were carried out. The Microbial analysis of the clay samples showed considerable contamination with both bacteria and fungi with fungal contaminants taking the lead. This observation may not be unlikely due to the ability of fungi species to survive harsher growth conditions than bacteria. 'Atike pupa' showed no bacterial growth. The clay with the largest bacterial count was Calabash chalk (Igbanke), while that with the highest fungal count was 'Eko grey'. The most commonly isolated bacteria in this study were Clostridium spp. and Corynebacterium spp. while fungi included Aspergillus spp. These results are an indication of the need to subject these clay materials to treatments such as heating before consumption or topical usage thereby ascertaining their safety.

Keywords : nano-material, clay, microorganism, quality

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