

(134)

**Characterisation of Kaoline Rich Laterite Soil for the Development of Soil Based Cosmetic Products**

**Dissanayake N.U.S.\* , Pupulewatte P.G.H., Senevirathne D.M., Jayawardana D.T.**

*Department of Forestry and Environment Science, University of Sri Jayewardenepura, Nugegoda, Sri Lanka*  
*\*sandaliidissanayake89@gmail.com*

**Abstract**

The present study aims to characterise the properties of the raw and thermally activated laterite soil to be used in the development of cosmetic products. Collected soil samples were air-dried for 48 hours to remove the extra moisture content. Air-dried soil was crushed to prepare 500 µm powdered materials. Thermally activated soil samples were prepared by heating the laterite soil at 100° C, 200° C, 300° C and 400° C for 3 hours in a muffle furnace. The Cell Forming Unit (CFU) was counted in raw soil sample and thermally activated soil samples at the beginning. An uncountable amount of microorganisms per gram was observed in the raw soil sample and fewer microorganisms were counted in 100° C and 200° C samples. The CFU was zero microorganisms per gram for the 300° C and 400° C samples. Anti Microbial Assay was tested with *Candida albicans*, *Pseudomonas aeruginosa*, *Staphylococcus aureus* microorganisms in raw and thermally activated laterite soil. The optical density of the culture is measured to estimate the growth of the microbial cells. The soil showed good antibacterial activity against all the three microbial species. Oil absorption, sweat absorption and swelling capacity were used to characterise the samples with 300° C and 400° C thermally activated soil. The characterisation results indicate that chosen soil samples have good oil and sweat absorption, good swelling capacity and microbiological safety, making them suitable for cosmetic applications.

**Keywords:** Cosmetics, Cell forming unit, Laterite soil, Anti Microbial assay