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## Green synthesis and characterization of natural cosmetics from underutilized tropical seeds

Olubunmi Atolani<sup>1,2</sup>, E T Olabiyi<sup>1</sup>, A A Issa<sup>1</sup>, H T Azeez<sup>1</sup>, S O Ibrahim<sup>1</sup>, M F Zubair<sup>1</sup>, O S Oguntoye<sup>1</sup>, E G Onoja<sup>2</sup>, O O Kayode<sup>2</sup>, O Adeniyi<sup>2</sup>, C B Adeosun<sup>2</sup> and G A Olatunji<sup>1</sup><sup>1</sup>University of Ilorin, Nigeria<sup>2</sup>Redeemer's University, Nigeria

The maintenance of beautiful skin and hair is the desire of many people all over the world, thus, the application of safe and appropriate cosmetic products is inevitable. An innovative green synthetic route was adopted for the direct characterization of some conventional and non-conventional tropical seeds which include *Sebal causarium*, *Cola gigantea*, *Blighia sapida*, *Cordia sebestena*, *Daniellia oliveri*, *Elaeis guineensis*, *Citrus aurantifolia*, *Citrus paradise*, *Vitellaria paradoxa*, *Citrullus vulgaris*, *Momordica charantia*, *Delonix regia*, *Moringa oleifera*, *Kigelia africana* and *Prosopis africana*. The lipid, fatty acid methyl and butyl/isobutyl esters obtained via multistep and direct methyl/butylation were characterized using Fourier transform infrared spectroscopy and gas chromatography-mass spectrometry. The principle of green chemistry was further adopted for the preparation of natural antiseptic soaps, which were fully plant-based, biodegradable and free of all artificial antibiotics, colorings, fragrance and preservatives. *Ocimum basilicum* served as source of fragrance as well as antiseptic agent. Physicochemical parameters which include color, acid value, free fatty acid values, percentage yield, non-fatty matter, saponification values, hardness, pH, color and foaming ability of the oils and saponified products were determined as applicable. The *in vitro* antimicrobial, antioxidant, anti-inflammatory and membrane stabilization activities of the oils and cosmetic products were determined using standard procedures. *Daniellia oliveri* oil contains 57% linolelaidic acid as the major fatty acid, while oleic acid (46%) and lauric acid (44%) were the most prominent in *Vitellaria paradoxa* and *Elaeis guineensis*, respectively. Linoeladic acid was the most predominant in *Citrullus vulgaris*, *Delonix regia* and *Prosopis africana*. The natural cosmetics production was highly cost effective compared to commercial products.

### Biography

O Atolani is a distinguished Medicinal Chemist with numerous scientific peer-reviewed publications. He is the Deputy Principal Investigator for the cosmetic research group and Principal Researcher in other groups at the University of Ilorin, Ilorin, Nigeria. He completed a Post-doctoral research study in Chemoinformatics for Drug Development in 2016 at a German Institute in Berlin. He is an Editor and Reviewer to a peer-reviewed journal and also an Editor of a reputable scientific journal.

atolani.o@unilorin.edu.ng  
tolanvent@yahoo.com

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