
Impact of eco-extractives methods on the extraction of polyphenols and antioxidant and antimicrobial activities from *Dialium* waste wood and barks

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Résumé

Species of the *Dialium* genus, in the subfamily *Dialoideae*, are known for their high medicinal and nutritional value. This study examines the potential health benefits of waste products obtained by eco-extraction methods from the wood and bark of *Dialium* species from the Congo Basin. The focus is on identifying and quantifying polyphenols and assessing their antioxidant and antimicrobial effects. The results showed significant levels of catechin, epicatechin and salicylic acid using high-performance liquid chromatography (HPLC UV-Vis) analytical techniques. The antioxidant potential of the extracts obtained is assessed by tests targeting their ability to scavenge free radicals (DPPH) and reduce ferric oxide (FRAP), thereby inhibiting oxidative damage. This information provides an insight into the potential health benefits of eco-extracted waste. A correlative study examined which polyphenols were likely to have certain antioxidant and antimicrobial activities. Ultimately, *Dialium polyanthum* and *Dialium sp. nov.* by-products from wood processing industries in the Congo Basin countries can be considered as interesting materials for the extraction and recovery of natural polyphenols, in particular due to the high salicylic acid content present in the wood.

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