

Antioxidant and antimicrobial activities of spent coffee residues

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Abstract

Spent coffee residue is a by-product of coffee processing and its disposal is a matter of concern. Coffee residues, however, have been reported to be useful as fertilizer, animal feed, and fuel. Chemical analysis has shown that phenolic compounds, which are responsible for antioxidant and antimicrobial activities, still remain in spent coffee residues. This study aimed to investigate the antioxidant and antimicrobial activities of spent coffee residue extracts. Spent coffee residues of two coffee cultivars 'Arabica' and 'Robusta' were extracted either with water \pm microwave power or with 70% ethanol \pm microwave power. The coffee residues extracted with water in combination with microwave power (800 watt, 30 s) had a significantly greater ($P < 0.05$) total phenolic content than those extracted with solvent only. Likewise, the strongest ability to scavenge DPPH was detected in coffee residues extracted with water in combination with microwave power. Extracts of 'Robusta' spent coffee residue had more total phenolic content, and showed greater antioxidant activity than extracts of 'Arabica'. Both 'Arabica' and 'Robusta' extracts had no antimicrobial activity against two postharvest pathogens: *Colletotrichum* sp. and *Lasiodiplodia theobromae*.