

Title Antibacterial activity of selected fruit peel extracts on *Escherichia coli*
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Abstract

The use of natural antimicrobials is increasingly sought after in the context of consumer resistance to chemical food preservatives. Several studies have demonstrated the antimicrobial activity of extracts from fruit by-products which makes them a good alternative to chemical preservatives. Value-addition to fruit by-products can be of an immense economic benefit to fruit processors, while alleviating the problem of waste disposal. The present research was undertaken to evaluate the effect of selected fruit peel extracts on *Escherichia coli* (ATCC 25922). Peels from twenty-two fruits were subjected to hot water extraction, and the anti-bacterial activity of the extracts was determined from their inhibitory effect on log phase growth characteristics of the organism. Bacterial growth was monitored for periods of up to 24-36 h using a standard 96-well dual wavelength spectrophotometric plate reader (Biotek Powerwave XS2), and the procedure was automated using Gen5 software. Among the fruits tested, black currant (*Ribes nigrum*), sea buckthorn (*Hippophae rhamnoides*), Lychee (*Litchi chinensis*), *Taxus canadensis*, cherimoya (*Annona cherimola*) and grape (*Vitis vinifera*) exhibited inhibitory activities > 70%; apple (*Malus domestica*), tomato (*Solanum lycopersicum*), cape gooseberry (*Physalis peruviana*), papaya (*Carica papaya*), kiwi (*Actinidia deliciosa*) and mangosteen (*Garcinia mangostana*), showed activities in the range of 50-70%; and blue berry (*Vaccinium corymbosum*), cherry (*Prunus avium*), mango (*Mangifera indica*), banana (*Musa acuminata*), water melon (*Citrullus lanatus*), cantaloupe (*Cucumis melo*) and citrus fruits showed activities < 50%. The peels showing high inhibitory activities on *E. coli* were typically from non-climacteric fruits.