



Antimicrobial activities of saponins and sapogenins from tea seed pomace (*Camellia oleifera* Abel)

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Recently, people have increasingly attracted in natural resources with antimicrobial activities. Several works have been done on screening of new antimicrobial agents from plant-derived natural products. Saponins which were obtained from tea seed pomaces (*Camellia oleifera* Abel) are the by-product of the tea seed oil manufacturing process. This plant normally contains 10-20% of bioactive triterpenoid saponins. In this work, we aimed to investigate the antimicrobial activities of saponins against dermatophytic fungi (*Trichophyton mentagrophytes* and *Trichophyton rubrum*), gram-positive, and gram-negative bacteria (*Staphylococcus aureus* and *Escherichia coli*). The saponins were isolated from tea seed pomace (*Camellia oleifera* Abel) using methanol extraction and subsequently hydrolyzed with hydrochloric acid yielding the sapogenins. The characteristic of saponins and sapogenins were identified using ¹H NMR spectroscopy. Results from disc diffusion method demonstrated that the combination of saponin and sapogenin with different saponin/sapogenin ratios (4:0, 3:1, 1:1, 1:3, and 0:4) can inhibit the growth of dermatophytic fungi (*Trichophyton mentagrophytes* and *Trichophyton rubrum*) as well as gram-positive bacteria (*Staphylococcus aureus*) at the minimum concentration of 100 mg/mL. The combination of saponin and sapogenin in a ratio of 3:1 has a great potential to use as an antimicrobial agent in cleansing and medicinal products.

Keywords: Saponin; Sapogenin; Tea seed pomace; *Camellia oleifera* Abel