

“Phytochemical analysis and comprehensive evaluation of antimicrobial and antioxidant properties of *Clidemia capitellata*”

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In Malaysia, medicinal plants are widely used in daily life as a major component of society's restorative therapies. Malaysia's environment is recognized for its wide range of species and for being a rich source of medicinal herbs. *Clidemia capitellata* (Bonpl.) D.Don is a shrub belonging to the family of the Melastomataceae locally known as "Senduduk bulu". The current study aims to determine the antibacterial, antioxidant, and chemical profile of *Clidemia capitellata* (Bonpl.) D.Don leaf extract. Antimicrobial activity was determined by disc diffusion in agar and microdilution in broth (MIC-g/mL). Antioxidant activity was determined using the DPPH free radical capture assay, the presence of phytochemical profile was determined by thin-layer chromatography (TLC) while total phenols (EGA/g) and flavonoids (EQ/g) were quantified using spectrophotometry. The results indicated that the extract of *Clidemia capitellata* was active against *Escherichia coli* (ATCC 25922) with a minimum inhibitory concentration (MIC) of 62.5 g/mL. The extract was the most effective at sequestering DPPH free radicals (28.60 ± 1.54 %). Total phenolic contents obtained were 80.78 ± 0.06 and total flavonoid contents obtained were 64.64 ± 0.10 of the extract respectively. The phytochemical profile revealed the presence of condensed tannins, terpenes, steroids, and polyphenols but no alkaloids. As a result of the positive results obtained, it is anticipated that the active component of extracts will continue to be extracted and that new chemical-pharmacological assessments will be conducted in the future.

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