

Chemical Analysis, Antioxidant Activity and Antimicrobial Activity of Isolated Compounds and Essential Oil from *Callistemon citrinus* Leaf

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Abstract : Natural products derived from medicinal plants provide unlimited opportunities for a new medication leads because of the unmatched accessibility of chemical variation. Six compounds were isolated from the n-butanol extract of *Callistemon citrinus* (Family Myrtaceae), they were identified as; nepetolide (1), callislignan A (2), 6,8-dimethoxy-4,5-dimethyl-3-methyleneisochroman-1-one (3), 3-methyl-7-O-benzoyl- β -D-glucopyranoside (4), 5, 7, 3', 5'-tetrahydroxy-6, 8-di-C-methyl flavanone (5), and (2R,3R,4S,5S)-2,4-bis(4-hydroxyphenyl)-3,5-dihydroxy-tetrahydropyran (6). The isolated compounds were evaluated as antioxidant and antimicrobial agents. The antioxidant activities of the compounds were determined using DPPH-radical scavenging and total antioxidant capacity (TAC) assays. The results indicated that compound (5) was most active in its capacity to scavenge free radicals in the DPPH assay [SC50 value, $4.65 \pm 0.74 \mu\text{g/mL}$] compared to the standard ascorbic acid and exhibited the highest activity in the TAC assay ($610.45 \pm 1.67 \text{mg AAE/g compound}$). The pure isolates were tested for their antimicrobial activity against four pathogenic microbial strains including *Staphylococcus aureus*, Methicillin-resistant *Staphylococcus aureus* (MRSA), *Pseudomonas aeruginosa* and *Candida albicans*. Also, the GC/MS analysis of its leaves essential oil presented nine identified compounds representing 91% of the total oil constituents. The outcomes got from this study give a reasonable justification for the medicinal uses of *Callistemon citrinus* plant.

Keywords : *Callistemon citrinus*, flavanone, antioxidant activity, antimicrobial activity, essential oil, Myrtaceae

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