

Evaluation of Antioxidant Activities, Total Phenolic and Total Flavonoid Contents of Aqueous Extracts of Leaf, Stem, and Root of *Aerva lanata*

Savita Chewchinda¹, Sumet Kongkiatpaiboon², and Pongtip Sithisarn^{3*}

¹Department of Food Chemistry, Faculty of Pharmacy, Mahidol University, Bangkok 10400, Thailand

²Drug Discovery and Development Center, Thammasat University Pathum Thani 12121, Thailand

³Department of Pharmacognosy, Faculty of Pharmacy, Mahidol University, Bangkok 10400, Thailand

*Corresponding author: E-mail: pongtip.sit@mahidol.ac.th

<https://doi.org/10.12982/CMUJNS.2019.0024>

Received: August 10, 2018

Revised: January 17, 2019

Accepted: January 29, 2019

ABSTRACT

Aerva lanata (Amaranthaceae) is a tropical weed commonly found in fields and wasteland. Several biological activities of this plant have been reported, such as antihyperglycemic, antimicrobial, and anticancer activities. Different antioxidant assays including DPPH radical scavenging, ferric reducing antioxidant power (FRAP), and ABTS radical scavenging assays were assessed to compare antioxidant potentials of plant extracts. The total phenolic and flavonoid contents were determined. HPLC analysis was used to quantify the amount of ferulic acid. From the results, the leaf extract showed the strongest radical scavenging activity as measured by DPPH and ABTS assays with IC_{50} values of 136 $\mu\text{g/ml}$ and 58 mg TEAC/g extract, respectively. Similarly, the highest reducing power of the leaf extract was observed at 70 mmol $\text{FeSO}_4/100$ g extract. HPLC quantification of ferulic acid yielded values of 1.58, 1.53, and 1.33 $\mu\text{g}/100$ g extract for the leaf, stem and root extracts, respectively. Thus, *A. lanata* leaf extract may be suitable for further development and application as pharmaceutical and nutraceutical products due to its potent *in vitro* antioxidant activities and high phenolic contents.

Keywords: ABTS, *Aerva lanata*, Antioxidant activity, DPPH, FRAP, Total phenolic