

Research Article

Evaluation of Leaves, Flowers, and Seeds of Coriander (*Coriandrum sativum* L.) through Microwave Drying and Ultrasonic-Assisted Extraction, for Biologically Active Components

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The coriander plant (*Coriandrum sativum* L.) is well known for its antibacterial and antioxidant properties since it contains a considerable number of bioactive compounds. This property encourages the use of coriander in food because it has many health benefits and preserves food longer. The current study's objective was to demonstrate the extraction of coriander's three fractions (leaves, flowers, and seeds) using microwave drying and ultrasonic assistance, in order to identify its distinct functional components. After microwave drying, the highest amounts of ash, fat, fiber, and protein with values 6.39 ± 0.04 , 10.10 ± 0.05 , 10.14 ± 0.06 , and $13.10 \pm 0.03\%$, respectively, were observed in coriander seeds. Among macro- and microminerals analyzed, contents of Ca and Mg were found highest in coriander leaves, with values 689 ± 0.14 and 412 ± 0.04 mg/100 g, respectively, whereas Fe, Zn, and Mn were found highest in seeds with values 15.46 ± 0.02 , 3.92 ± 0.02 , and 1.29 ± 0.02 mg/100 g. Ultrasonic-assisted ethanolic extracts of microwave-dried coriander leaves presented significantly high ($p < 0.05$) total phenolic contents (253.45 ± 0.12 mg gallic acid equivalent/100 g), total flavonoid contents (98.15 ± 0.09 mg quercetin equivalent/100 g), and total antioxidant activity (47.32 ± 0.04 mg trolox/100 g), followed by seeds, while flowers presented lowest values. Significantly high ($p < 0.05$) antimicrobial activities were exhibited from extracts of coriander seeds, followed by leaves. It was concluded that leaves, flowers, and seeds of coriander all were rich source of nutritional components and bioactives, and microwave drying and ultrasonic-assisted extraction were proved useful techniques for maximum retention of these contents in powders and ethanolic extracts, respectively.