عنوان مقاله:

Ultrasound-assisted Extraction of Bioactive Compounds from Zataria Multiflora Leaves, Its Phytochemical Composition, Antioxidant and Antibacterial Activity Against Important Poultry Pathogens

محل انتشار:

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خلاصه مقاله:

This study was conducted for in vitro evaluation of Zataria multiflora Boiss. (Z. multiflora) extract as a functional feed additive for poultry production. For this reason, the phytochemicals, antioxidant and antibacterial activity of the extract was characterized. The ultrasound-assisted extract from Z. multiflora leaves was analyzed using High-performance liquid chromatography to determine the composition of phenolic and flavonoid compounds. The antioxidant activity were evaluated using DPPH, NO and FRAP techniques. The antibacterial assay was carried out by the disc diffusion method against five important poultry pathogenic bacteria including Staphylococcus aureus, Escherichia coli, Salmonella enteritidis, Salmonella typhimurium and Clostridium perfringens. The results confirmed the presence of phenolics including gallic acid, caffeic acid, syringic acid, epicatecin, ferulic acid, gentisic acid and flavonoid compounds including apigenin, naringenin, quercetin, luteolin. In all the assays the extract exhibited antioxidant activities DPPH IC50=221.9, NO IC50=283.7, and FRAP IC50=254.1 µg/ml. The antioxidant activities of the Z. multiflora leaves extract was lower than that of reference antioxidant vitamin C and butylated hydroxytoluene (BHT). The results of antibacterial assay showed the staphylococcus aureus, E.coli, and Salmonella enteritidis as the most susceptible bacteria to the extract in 0.5 and 1 mg/disc extract concentrations. The phenolic and flavonoid compounds present in Z. multiflora leaves extract contributed towards the antioxidant and antibacterial activities of the extract. .Consequently, the biological activity of extract renders it as a functional feed additive for poultry production industry

کلمات کلیدی:

Phytochemical analysis, antioxidant activity, antimicrobial activity, biological activity, functional feed additive