sciendo

DOI: 10.2478/auoc-2022-0018

Ovidius University Annals of Chemistry Volume 33, Number 1, pp. 121 - 128, 2022

Comparison of ultrasound and maceration methods on antioxidant and antimicrobial efficacy of phenolic compounds extracted from *Cynodon dactylon* L. of Algeria

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Abstract. An investigation was carried out to extract the polyphenols from *Cynodon dactylon* L. by ultrasound-assisted extraction (UAE) and maceration assisted extraction (MAE), and to assess the antioxidant and antimicrobial activities, as well as the evaluation of the cytotoxic effect of ethanolic extracts. The yields of crude extracts were 9.40 % for the MAE extract and 12.52 % for the UAE extract. The results showed that the extract obtained by MAE contains a high level of polyphenols and flavonoids estimated by 42.14 ± 0.75 mg EAG/gE and 23.57 ± 0.78 mg EQ/gE. In contrast, the content of condensed tannins in the extract of UAE (19.34 ± 0.48 mg EC/gE) is higher. The evaluation of the antioxidant activity revealed a considerable antioxidant response, the MAE extract represents the most active extract, with an IC_{50} =7.52 ± 0.037 mg/mL for the DPPH test, and 15.83 ± 0.37 mg EAA/gE for the FRAP test. The results of antimicrobial activity showed that all the strains targeted have high susceptibility to the two ethanolic extracts of *Cynodon dactylon* L. The evaluation of cytotoxicity against RBCs was carried, the results shown the non-toxic effect of *C. dactylon* extracts and hence support its ethnomedicinal application.

***Keywords*:** *Cynodon dactylon*; phenolic compounds; antioxidant activity; antimicrobial activity; cytotoxicity.

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