

OP17. ALKALOIDS AND POLYPHENOLS WITH ANTIBACTERIAL, ANTIOXIDANT, ANTI-INFLAMMATORY AND ANTICHOLINESTERASE ACTIVITIES FROM *ATRACYLIS CANCELLATA*

Hamada HABA¹ , Mohamed Ibrahim BADAoui¹ , Soumia MOUFFOUK¹ , Abdulmagid Alabdul MAGID² , Chaima MOUFFOUK^{1,3} , Laurence Voutquenne-NAZABADIOKO² , Mohammed BENKHALED¹ 

¹Laboratory of Chemistry and Environmental Chemistry (L.C.C.E), Department of Chemistry, Faculty of Matter Sciences, University of Batna 1, 05000 Batna, Algeria

²ICMR-UMR CNRS 7312), Campus Sciences, Bât. 18, BP 1039, 51687, Reims Cedex 2, Reims University, France

³Department of Pharmacy, Faculty of Medicine, University of Batna 2, 05000 Batna, Algeria

*Corresp.Author. E-mail: haba.hamada@yahoo.fr

Atractylis cancellata L., belonging to the Asteraceae family is used in folk medicine for the treatment of skin disorders, it is an herbaceous endemic plant growing in semi- arid zone of Mediterranean area. We report herein the isolation and identification of one new alkaloid type pyrroloquinolone A, together with twelve known compounds. Moreover, the antioxidant activity of extracts (PE, EtOAc and *n*-BuOH) and some phenolic compounds were determined by DPPH, ABTS, CUPRAC, and reducing power methods. Furthermore, the acetylcholinesterase and butyrylcholinesterase inhibitory activities of extracts and the two alkaloids were tested. In addition, the antibacterial activity was determined using the agar disk diffusion assay against five bacterial strains and the anti-inflammatory activity was evaluated by the ovalbumin method. The ethanol extract (70%) of dried whole plant *A. cancellata* was partitioned by liquid/liquid chromatography into three extracts PE, EtOAc and *n*-BuOH. Purification of the PE, EtOAc and *n*-BuOH soluble parts using diverse chromatographic methods (VLC, CC, HPLC and TLC) provided thirteen secondary metabolites **1-13**. Their structures were determined using 1D- and 2D-NMR and HR-ESI-MS techniques, and comparison with data reported in the literature. The antioxidant activity, evaluated by DPPH, ABTS, CUPRAC, and reducing power methods, showed that some compounds exhibit good antioxidant activity. Furthermore, the *n*-BuOH extract, and the two alkaloids pyrroloquinolone A, and 4- methoxy-1-methyl-2-quinolone displayed good AChE and BChE inhibitory activities. This study describes for the first time the occurrence of alkaloids in *Atractylis* genus. Moreover, all the tested extracts displayed an antibacterial effect at least against three bacterial strains. The petroleum ether extract inhibited the growth of all the tested bacteria in a dose-dependent manner except *E. coli* ATCC 25922 and it revealed a strong anti-inflammatory activity (81.77± 0.05%). As a conclusion, *A. cancellata* could be an important source of natural pharmacological candidates against oxidative stress, inflammatory and microbial diseases.

Keywords: *Atractylis cancellata*, alkaloid, polyphenol, NMR, biological activities.