

**PHYTOCHEMICAL AND BIOLOGICAL EVALUATION OF THE
ANTIOXIDANT AND ANTIBACTERIAL ACTIVITY OF
CHLOROFORM EXTRACTS OF AN ALGERIAN SAHARA PLANT.**
HAZMOUNE Hichem^{1*}, FADEL Hamza², CHEURFA Zahia¹, NAIT BACHIR Yacine¹,
SEGHIRI Ramdane² and BOUTOUMI Hocine¹

¹Chemical Engineering Laboratory (LGC) University of Blida 1, road of soumaa LP 270, 09000 Blida
Algeria.

²Research Unit, Valorisation of Natural Resources, Bioactive Molecules and Physicochemical and
Biological Analyzes (VARENBIOMOL), University of Mentouri Brothers Constantine 1, Ain El-Bey
Road, 25000, Constantine, Algeria.

Code CCP 5

Email*: hichemhazmoune@yahoo.fr

Introduction & Objectives: The aim of our work was a quantitative phytochemical and biological comparison (the total content of polyphenols and flavonoids), the in vitro evaluation of the antioxidant capacity and antibacterial activities between two phases of maceration of an Algerian Saharan plant belonging to the family Ephedraceae [1].

Methodology (Material and methods):

Two phases (CU and CH) of Chloroform extracts from the plant of the Ephedracea family were obtained by two extraction methods (Ultrasound and Steam Entrainment) and followed by successive liquid/liquid extraction using solvents of increasing polarity yield was obtained (0.67% and 0.63%). These extracts were also used to study their phytochemical screening and dosages (Total content of polyphenols and flavonoids was estimated. The evaluation of the antioxidant power, which was carried out using the method of DPPH [2]. The antibacterial activities pathogens including *S aureus*, *Bacillus subtilis*, *Pseudomonas aeruginosa* (, and *E.coli*, and were evaluated by the agar disk diffusion method of mueller-hinton. The antibacterial activity was determined by measuring the clear inhibition zone after incubated the media at 37 ° c for 24 h [3].

Results and Discussion:

Both CU and CH extracts contain (156.50 and 154.11) ($\mu\text{g EAG/mg E}$) and (90.50 and 74.25) ($\mu\text{g QE/mg E}$) of polyphenols and flavonoids respectively). The results of the study showed a strong activity in the inhibition of free radicals with a ($\text{IC}_{50} = 94 \pm 10 \mu\text{g / ml}$) of CU and ($\text{IC}_{50} = 102 \pm 1 \mu\text{g/ml}$) of CH. The results of antimicrobial activity (mic: iz) (mg/ml: mm) from different extracts are:

- Staphylococcus aureus* : [C_U (MIC : IZ) (30mg/ml : 10mm)], [C_H (MIC : IZ) (30mg/ml : 8mm)],
- Bacillus subtilis*: [C_U (MIC: IZ) (120mg/ml: 9.5mm)], [C_H (MIC: IZ) (60mg/ml: 6.5mm)]
- Pseudomonas aeruginosa*: [C_U (MIC: IZ) (120mg/ml: 7mm)], [C_H (MIC: IZ) (120mg/ml: 8mm)]
- Escherichia coli*: [C_U (MIC: IZ) (120mg/ml: 8mm)], [C_H (MIC: IZ) (120mg/ml: 8.5mm)].

Conclusion: It was found that there is a relationship between the proportion of flavonoids and polyphenols in the extracts and this inhibition of the antioxidant power, and the results of this analysis showed an average antibacterial activity for the two extracts.

Keywords: Ephedraceae, , antioxidant capacity, antibacterial activity, IC_{50} , MIC

References

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Communications Affichées

