

BDEE
2021

The 1st International Electronic Conference
on Biological Diversity, Ecology and Evolution
15-31 MARCH 2021 | ONLINE

Chaired by **PROF. DR. MICHAEL WINK**



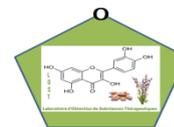
Investigations on bioactive compounds and *in vitro* biological potent of *Corchorus olitorius* . L from Algerian cultivar.

Toma Nardjes Mouas ^{1,*}, Zahia Kabouche ¹, Nahla Benabid ² and Meriem Bendel²

¹ Université frères Mentouri-Constantine1, Laboratoire d'Obtention de Substances Thérapeutiques LOST, Campus Chasbet Ersas, 25000 Constantine, Algeria;

² Constantine 25000, Algeria;

•Corresponding author: mouas.toma.nardjes@umc.edu.dz



Laboratoire d'Obtention
de Substances Thérapeutiques



Abstract: The evaluation of phytopharmaceutical, antioxidant and antimicrobial activities still a useful and interesting task, especially for unknown and less used medicinal plants in traditional herbal medicine. These plants represent new sources of active compounds.

Corchorus olitorius Linn (Tiliaceae) is an important cultivated edible plant in many Arab countries such as Egypt or Sudan, and extreme east of Algeria, it is used for the preparation of a very popular hot soup (called Molokhia). In West Algeria, this plant is reported to be used, for the first time, for medicinal purposes.

In the present study, polyphenols potential and *in vitro* biological activities of cultivated *Corchorus olitorius* .L leaves and seeds from the Grand Constantinois region (North-east Algeria) are investigated and some preliminary results exhibit an interesting DPPH free radical scavenging potential and antibacterial and antifungal activities for studied plant proportional to richness in secondary metabolites.

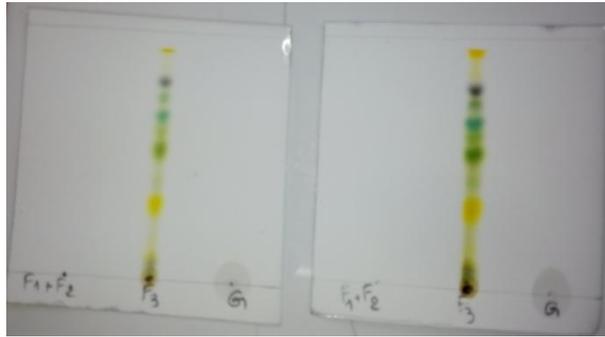
Keywords: Edible plants; bioactive compounds; antioxidant activity; antimicrobial activity; soil toxicity phytoremediation.

Results and Discussion

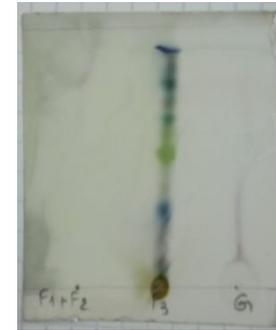
Botany and extract preparation



Qualitative and quantitative analysis



Chemical revelation H₂SO₄



- The total phenol content shows total polyphenols content of $(20,2 \pm 0.01)$ and $(6,375 \pm 0.00)$ $\mu\text{g EGA}/\text{mg DE}$ for leaves and seeds extracts respectively.
- For total flavonoids content, $(14,05 \pm 0.00)$ $\mu\text{g QE}/\text{mg}$ is reported for leaves extract.

In vitro Antioxidant activity

The antioxidant capacity of *Corchorus olitorius* L. leaves ethanol extract was determined using DPPH free radical scavenging test
IC₅₀ = 86,4±0.01 µg/ml, EC₅₀ = 0,017 ±0.5 µg/ µg DPPH,
APR= 58 ±0.08 %

Which is close to referential used standard: ascorbic acid
IC₅₀ = 110±0.00 µg/ml , EC₅₀ = 0,022 ±0.04 µg/ µg DPPH,
APR= 45,45 ±0.8 %

Which is in agreement with obtained total phenols content.

***In vitro* Antimicrobial activity**

• Antibacterial test

The diameters of the growth inhibition zones exhibit an important antibacterial potential, at low concentrations:

- 20mm of inhibition zone for *Bacillus subtilis* treated with 100µg/ml of leave extract,
- 22mm of inhibition zone for *Staphylococcus aureus* treated with 50µg/ml of leave extract,
- 16mm of inhibition zone for *Escherichia coli* treated with for 25µg/ml of leave extract.

Gentamicin (10 µg/ disc) and Nalidixic (30 µg/ disc) were used as positive control.

• Antifungal activity test

Antifungal activity against *Trichoderma harzianum* Rifai revealed that there is no inhibiting potential against studied strain which is resistant to plant leaves extract even at high dose.

Conclusions In the present work an edible cultivated plant *Corchorus olitorius* .Linn leaves and seeds methanol percolate was investigated through its *in vitro* antioxidant and antimicrobial activities assessment. Qualitative and quantitative analysis methods were used: Soxhlet extraction, thin layer chromatography (TLC) and UV spectroscopy. The antioxidant effect of studied plant was evaluated by the reaction between DPPH free radical scavenging, the antimicrobial effect was evaluated by disk diffusion method for one bacteria Gram (-): *Escherichia coli*: ATCC25922, and two bacteria Gram (+) *Staphylococcus aureus*: ATCC 25923, *Bacillus subtilis* ATCC 6633 and on a fungus: *Rhizopus oryzae*: M491890.1). This functional food may, therefore, be considered as natural preservatives against food-borne pathogens that may be useful in foods and for protecting human health.

Acknowledgments

Authors would like to thank Algerian Ministry of Higher Education and Scientific Research DGEFS, and the Algerian Directorate General for Scientific Research and Technological Development DGRSDT for financial fund.



BDEE
2021