

ANTIMICROBIAL ACTIVITY OF THUJA OCCIDENTALIS EXTRACTS

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Abstract: The purpose of this work is to test the antimicrobial efficacy of Thuja occidentalis (TO) extracts against Gram-negative bacteria and fungi represented by the following reference strains: *Shigella flexneri* (ATCC 12022), *Pseudomonas aeruginosa* (ATCC 27853), *Escherichia coli* (ATCC 25922), *Salmonella typhimurium* (ATCC 14028), *Haemophilus influenzae* type B (ATCC 10211), *Candida parapsilopsis* (ATCC 22019) and *Candida albicans* (ATCC 10231), respectively. The evaluation was conducted in accordance with ISO 20776-1:2019 by measuring the loss of microbial mass using spectrophotometry to ascertain the optical density (OD)

• Introduction

Numerous studies concentrate on alternative or complementary antimicrobial strategies due to the spread of multidrug-resistant bacteria. Antimicrobial compounds derived from natural resources, such as plant extracts, are garnering increasing interest for their activity against various microorganisms in the hope that, unlike antibiotics, they will be effective without inducing resistance.

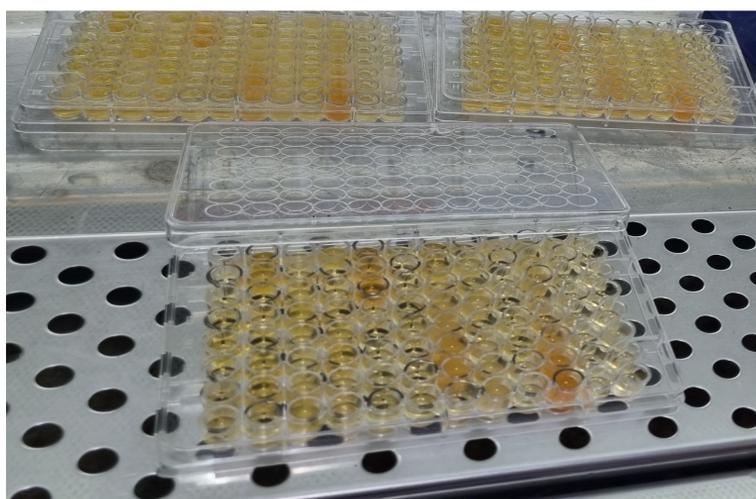
Thuja has been used in folk medicine to treat disorders of the respiratory system (bronchial catarrh), the urinary and reproductive systems (enuresis, cystitis, amenorrhea), and rheumatic and autoimmune diseases (psoriasis)

• Material and method

Three type of plants collected from Liebling, Timis County, Romania were tested:

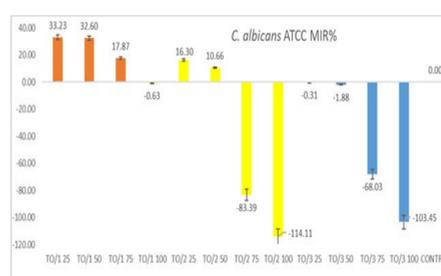
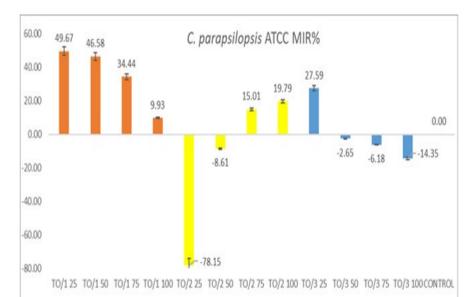
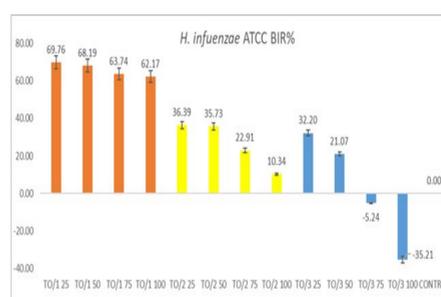
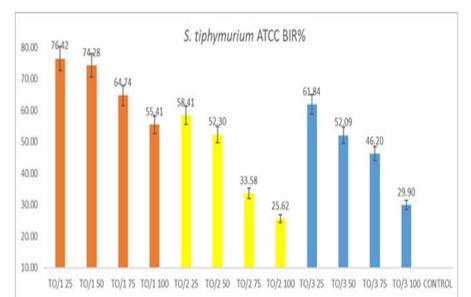
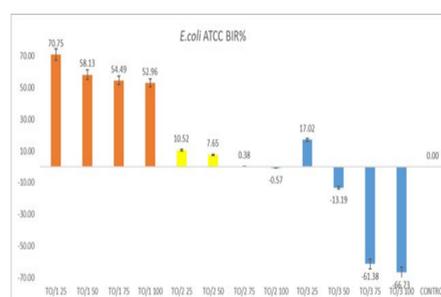
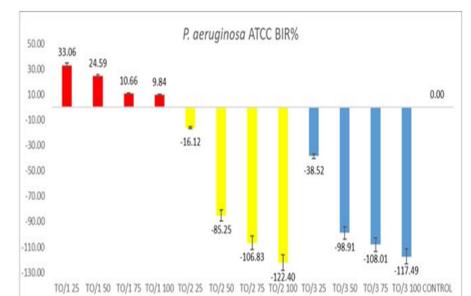
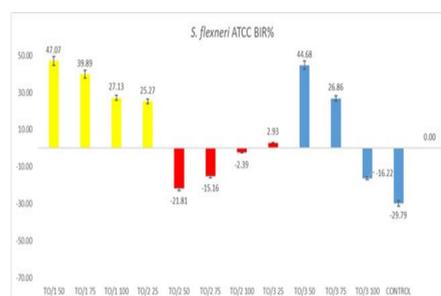
Thuja occidentalis smaragd (TO1), *Thuja occidentalis golden smaragd* (TO2), and *Thuja occidentalis fastigiata* (TO 3).

Broth microdilution method was performed, to demonstrate the antimicrobial activity of TO alcoholic extracts (1:10) against Gram-negative bacteria and fungi.



• Results and discussions

All the results obtained are presented as follows as graphical representations



• Conclusions

As a result of our research, we can state that all the extracts, especially at the first concentration tested cause an inhibiting effect on Gram-negative bacteria and fungi.

The best effect was for TO2, and it recommends it as a potential future candidate in natural products with antimicrobial activity.