New essential oils with interesting biological activities from endemic plants of Côte d'Ivoire: *Zanthoxylum mezoneurispinosum* and *Z. psammophilum*.

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Introduction

Context

The genus *Zanthoxylum* (Z.) is well known because of his biological properties such antioxidant, antimicrobial, antifungal and anticancer properties(**1-2**). In Asia (Japan, Thailand, etc.), South America (Mexico, Porterico, etc.), North America (Canada, etc.), and Africa (Ethiopia, Nigeria, Cameroon, etc.); *Zanthoxylum* are currently used on the treatment of sterility, rheumatism, ulcers, diabetes and dysentery (**3-4**).

However, *Z. mezoneurispinosum* and *Z. psammophilum* are two Zanthoxylum endemic plants in Côte d'Ivoire which the literature does not mention any study regarding essential oils.

This work aims to determine the chemical composition as well as the anti-inflammatory and antioxidant activities of the essential oils of these two endemic plants.

Objectives

Given potential uses in medicine of *Z. mezoneurispinosum and Z. psammophilum*, the aim of this work was to evaluate the chemical composition and the biological activities of essential oils extracted from both plants.

Methods

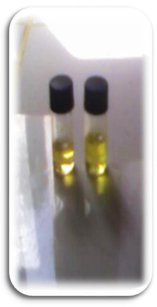
Z. Mezoneurispinosum and *Z. psammophilum* are aromatic plants belonging to the Rutaceae family.

Z. mezoneurispinosum

Z. psammophilum

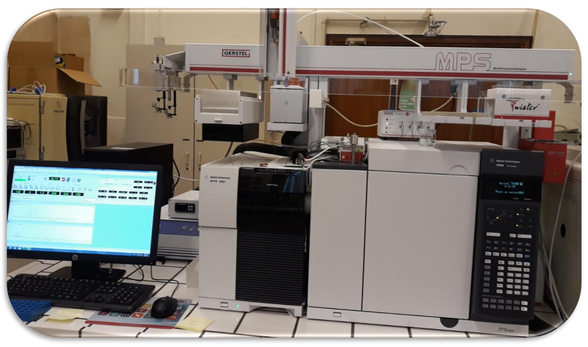
The essential oils were extracted from the leaves, trunk bark and roots in the fresh state by hydrodistillation using Clevenger device (n=3).

Clevenger



Essential oils

YIELD (%)=(MEO / MFO) x 100



GC-MS

Chemical composition of these plants was obtained by gas chromatography-mass spectrometry (GC-MS).

Results

Yield and main essential oils compounds

➢ Yield in essential oils

- *Z. mezoneurispinosum*

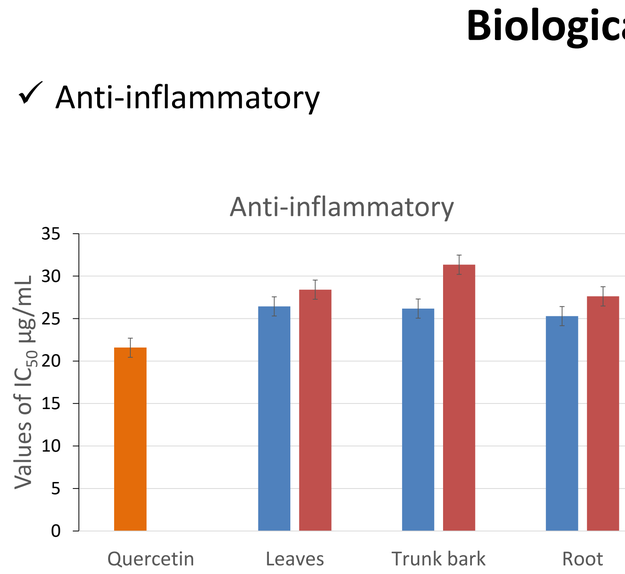
Leaves: 0.2%; Trunk bark: 0.2%; Root: 0.04%

- *Z. psammophilum*

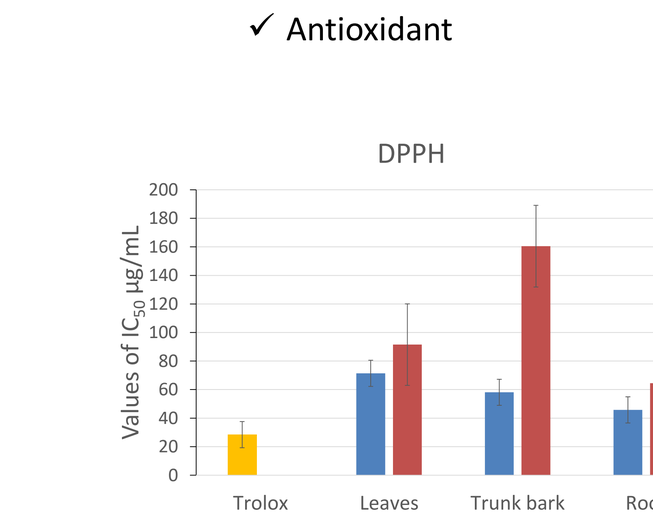
Leaves: 0.05%; Trunk bark: 0.5%; Root: 0.02%.

➢ Chemical compounds:

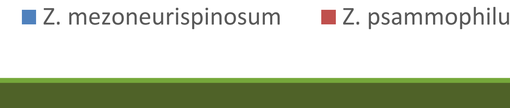
Thirty-four compounds have been identified in the essential oils of *Z. mezoneurispinosum*. The major compounds belong to monoterpenes and sesquiterpenes families in all organs.



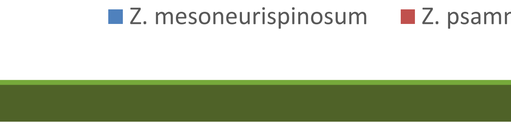
Thirty-seven compounds have been identified in the essential oils of *Z. psammophilum*. The main compounds are non-terpenic acyclic molecules (methylketones) (**5**).



- Examples of identified methylketones



2-undecanone



2-tridecanone

Biological activities

✓ Anti-inflammatory

✓ Antioxidant

Conclusion

For the first time, this work allowed the characterization and determination of chemical composition of *Z. mezoneurispinosum and Z. psammophilum* essential oils, two endemic plants of Côte d'Ivoire. The essential oils are mainly composed of monoterpenes for *Z. mezoneurispinosum* and methylketones in *Z. psammophilum.* Biological activities of essential oils showed strong anti-inflammatory and antioxidant activities. This work emphasizes the potential for recovery of these two plants.

Literature

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For further informations

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Acknowledgments

Our thanks go to all the staff for the welcome and their availability of Laboratory of Natural Molecules Chemistry, University of Liege, Gembloux Agro-Bio Tech. Tanoh A. E. is grateful to the Ministry of Higher Education of Côte d'Ivoire for providing a research grant.