Seasonal effect on the chemical composition of essential oils hydrodistillated from *Zanthoxylum leprieurii* Guill. & Perr. and on their biological activities

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This study focused on evaluating the seasonal effect on the chemical composition and on the biological activities of essential oils hydrodistillated from leaves, trunk bark and fruits of *Zanthoxylum leprieurii* (*Z. leprieurii*) over the months, describing the climatic conditions of specific seasons of Côte d'Ivoire. *Z. leprieurii* is a plant commonly used in traditional medicine. Besides, some of its metabolites have already shown antioxidant, antimicrobial, anticancer, cytotoxic, schistosomidal and antibacterial properties [1,2].

Essential oils were hydrodistillated from organs with a Clevenger-type apparatus and analyzed by gas chromatography-mass spectrometry (GC/MS). Essential oil of leaves were dominated by sesquiterpene and methylketones, such as tridecan-2-one, (*E*)-β-ocimene, β-caryophyllene, dendrolasin, undecane-2-one and thymol. Fruits essential oils were characterized by monoterpenes with β-myrcene, citronellol, geranial and methyl nerate. Essential oils of trunk bark were commanded by methylketones, as the main compounds were tridecan-2 one, β-caryophyllene, α-humulene, tridecan-2-ol and (*E*,*E*)-farnesol. .

Results showed that the seasonal effect does not statistically impact the chemical composition of essential oils hydrodistillated from the different organs of the plant. Besides, the essential oils investigated in this work have exhibited significant antioxidant, anti-inflammatory, insecticidal and moderate anti-plasmodial activities. Those activities were related to some compounds identified in the essential oils. In conclusion, this investigation confirmed the high potential of *Z. leprieurii* for a use in traditional medicine.

References

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