Book of Abstracts

13th NATIONAL CHROMATOGRAPHY MEETING

Chromatography: contribution to a more sustainable world

17-19th December 2023

U LISBOA UNIVERSIDADE DE LISBOA

FACULDADE DE FARMÁCIA Universidade de Lisboa

SOCIEDADE PORTUGUESA DE QUÍMICA

13º ENCONTRO NACIONAL DE CROMATOGRAFIA

17-19 DE DEZEMBRO DE 2023

FFUL - LISBOA

Book of Abstracts

P18. Insights into the Bioactivities and Chemical Analysis of *Ailanthus altissima* (Mill.) Swingle

Caramelo D.[1], Pedro S.I.[1,2], Marques H.[3,4], Simão A.Y.[3,4], Rosado T.[3,4], Barroca C.[1,2,5], Gominho J.[1], Anjos O.[1,5,6], Gallardo E.[3,4]

[1]*Centro de Estudos Florestais (CEF), Laboratório Associado TERRA, Instituto Superior de Agronomia, Universidade de Lisboa, 1349-017 Lisboa, Portugal.*
[2]*Centro de Biotecnologia de Plantas da Beira Interior, 6001-909 Castelo Branco, Portugal.*
[3]*Centro de Investigação em Ciência da Saúde Universidade da Beira Interior (CICS-UBI), 6200-506 Covilhã, Portugal.*
[4]*Laboratório de Fármaco-Toxicologia, UBIMedical, Universidade da Beira Interior, 6200-284 Covilhã, Portugal.*
[5]*Centro de Recursos Naturais, Ambiente e Sociedade, Instituto Politécnico de Castelo Branco, 6001-909 Castelo Branco, Portugal.*
[6]*Instituto Politécnico de Castelo Branco, 6001-909 Castelo Branco, Portugal.*
Email: dbrcaramelo@gmail.com

In recent years, several analytical methods for characterising the *Ailanthus altissima* (Mill.) Swingle have aroused interest in the scientific community, since this species is not only considered an invasive alien species, but also possesses a wide and complex number of chemical compounds. These compounds are studied with the aim of ascertaining their biological activities, which could help to understand their mechanisms of action, develop new products with potential application in different fields of research. Consequently, it is essential to analyse the optimal extraction method and identify and quantify the main classes of compounds in order to improve knowledge and the potential uses of this species. Based on the review of the different chromatographic techniques for identifying and quantifying the majority of compounds, it was concluded that HPLC-UV and HPLC-DAD are widely used for phenolic compounds and for one of the most important compounds, the ailanthone with concentrations ranged from 6.44 µg/mL to 825 µg/mL. Additionally, the most widely used technique for identifying compounds in the terpene class is GC-MS and GC-FID. Regarding extraction methods, the most commonly used according to the literature is maceration, where the stirring time differs greatly depending on the solvent used. Although there have been a few studies on the bark and leaves of this species which contribute to our knowledge of its bioactivities based on its chemical profile, other parts such as flowers, seeds and stems could be potential study targets for discovering new compounds and optimising the analytical techniques used.

Acknowledgements: This work was partially supported by CICS-UBI, which is financed by National Funds from the Fundação para a Ciência e a Tecnologia (FCT) and by Fundo Europeu de Desenvolvimento Regional (FEDER) under the scope of PORTUGAL 2020 and Programa Operacional do Centro (CENTRO 2020), with project references UIDB/00709/2020 and UIDP/00709/2020. The Forest Research Centre was supported by the Fundação para a Ciência e a Tecnologia through UI/BD/151511//2021 and CERNAS-IPCB through UIDB/00681/2020. D. Caramelo acknowledges the FCT in the form of fellowship (UI/BD/151511//2021).

References

1. Caramelo, D.; Pedro, S. I.; Marques, H.; Simão, A. Y.; Rosado, T.; Barroca, C.; Gominho J.; Anjos O.; Gallardo, E. Applied Sciences (**2021**). 11(23). 11331.