Valorization of Portuguese Natural Resources

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In the last year, some of our research involved: i) corroboration of the medicinal value of a traditionally used plant, *Genista tridentata* L., and ii) analysis of the climate-change impact on an economically important species, *Olea europea* L..

Regarding the points mentioned above, we highlight that the medicinal use of plants is growing in Portugal. However, in many cases, the validation of their health benefits is far from being established. In that context, *G. tridentata* is a case study due to its use in Portuguese traditional medicine to treat various inflammation-related health problems. In that regard, we established the plant antioxidant activity at the cellular level and significantly inhibited the LPS-triggered NO production by downregulating Nos2 gene transcription and consequently iNOS expression. Additionally, root and stem extracts decreased the LPS-induced transcription of the pro-inflammatory genes *Il1b*, *Il6*, and Ptgs2. Thus, the results support the anti-inflammatory properties attributed to *G. tridentata* preparations. Moreover, their richness in flavonoids (Fig. 1), compounds associated with anti-inflammatory properties, was proved, and among the isolated flavonoids, a unique natural compound, the 3-methoxymundulin, was isolated.

Olea europea is recognized as one of the most economically important species, and the climate change effect on its development is unknown. In that regard, we demonstrate the adjustment of the *O. europaea* antioxidant system and the modulation of its phenolic and lipophilic compounds (Fig. 2). So, it seems that the species is adapting to the climate-change and maintaining its nutritional value.

So, we contribute to confirm some of the benefits attributed to plants growing in Portugal, establishing their biological properties and their chemical profile. In doing so, we contribute to their valorization as a source of bioactive compounds or exciting ingredients to be included in the formulation of smart foods or natural medicines.

FIGURE 1
A) Flavonoid profile of the *Genista tridentata* L. ethanolic extract; B) Type of flavonoids identified and the new natural compound isolated, 3-methoxymundulin.

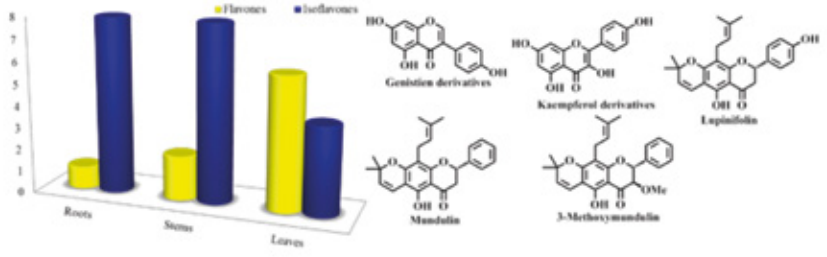

FIGURE 2
A) Lipophilic and phenolic composition of olive leaves; Flav. – flavonoids; Sec. – secoiridoids; Hydr. – hydroxycinnamic acid derivatives; Fat. – fatty acids; Terp. – terpenes; Ster. – sterols; B) Important secondary metabolites involved in *O. europea* response to stress; Glu = glucose; Rut= rutinose.X