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Biological activities of invasive plants available in coastal Douro in Portugal

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Background: Invasive plants cause ecological and economic problems on a global scale, but also provide extraordinary opportunities of study. Thus, it becomes relevant, besides being able to control their propagation, to study and incorporate them into value added products. **Objective:** Collect information about invasive plants with distribution in the riparian/maritime areas of the coastal Douro and their biological activities. **Methods:** A literature review was conducted to analyze the biological activities of invasive plants with a distribution in the riparian/maritime areas of the coastal Douro. Thus, in a first phase, using the websites “invasoras.pt” and “flora.on”, information was collected on invasive plants with a distribution in the riparian/maritime zones of the coastal, in Northern Portugal. For the analysis of the biological activities of invasive plants, scientific articles written in English and Portuguese were searched in the different databases, Pubmed and Science Direct, between June and September 2022, using the following search equation: [Scientific name of the plant] AND [biological activity] AND [in vitro]. **Results:** The invasive plants included in the study were: *Acacia dealbata*, *Acacia melanoxylon*, *Arctotheca calendula*, *Arundo donax*, *Carpobrotus edulis*, *Cortaderia selloana*, *Fallopia japonica*, *Ipomoea indica*, and *Oxalis pes-caprae*. Over the years some of biological activities of *Acacia dealbata* have been reported, including cytotoxic, anti-inflammatory and antioxidant activities. Some of the biological activities studied in *Acacia melanoxylon* were antioxidant and anthelmintic activities. To date, no scientific publications were found that address biological activity of *Arctotheca calendula*. *Arundo donax* has demonstrated antimicrobial, anthelmintic, and antioxidant activities. Some scientific publications have shown that the extracts of *Carpobrotus edulis* have antioxidant, antifungal, antimicrobial, and cytotoxic activities. Up to now, the only studied biological activity of *Cortaderia selloana* has been antibacterial activity. Modern research shows that *Fallopia japonica* has many pharmacological effects, including anti-inflammatory, antioxidant, anticancer, antibacterial and antifungal effects. The only biological activity studied and evidenced in *Ipomoea indica* was antioxidant activity. Lastly, *Oxalis pes-caprae* presents as biological activities the antioxidant, antifungal and antibacterial activities. Thus, biological activities demonstrated by invasive plants reveal that they can be a source of valuable pharmacological potential. **Conclusions:** Considering the diversity of plants and their biological activities, the use of invasive plant extracts emerges as a viable alternative ensuring a commitment to sustainability.

Keywords: Invasive species; biological activities; coastal Douro plants;