



Abstract

# Phytochemical and Pharmacological Profile of Four Malagasy Medicinal Plants Used in Different Chronic Diseases: Strategies for the Sustainable Use of Natural Resources in the Malagasy Health System<sup>†</sup>

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**Abstract:** Traditional medicine plays an important role in the Malagasy health system. In Madagascar, medicinal plants are the main remedies for several diseases, especially chronic diseases. Scientific studies are performed to valorize the use of *Imperata cylindrica* (Ic), *Uapaca bojeri* (Ub), *Vaccinium seconfidiflorum* (Vs), and *Ravenala madagascariensis* (Rm). Ic and Ub are used to treat some inflammatory-related diseases, Vs has an anti-diabetic value, and Rm is known as an antihypertensive. Phytochemical and pharmacological studies were carried out using standard scientific models to justify their properties. Firstly, the antioxidant, analgesic, anti-inflammatory, and/or vasorelaxant activities of their crude methanol extracts (ME) were evaluated according to ethnomedicinal information. The ME of Ic, Ub, and Vs showed potent antioxidant activities on DPPH and FRAP methods. These species are rich in phenolics, flavonoids, and organic acids, known for their antioxidant activities. They also possess significant analgesic and anti-inflammatory activities, respectively, assessed on the pain model caused by acetic acid (1%) and on inflammatory edema induced by carrageenan in mice. Sitostenone was isolated as an analgesic and anti-inflammatory compound from Ic. Ub and Vs ME significantly reduced the glycemia level after 30 min of glucose loading in mice compared to glibenclamide. Androsta-1,4-dien-3,16-dione was isolated as the vasorelaxant molecule from Rm, responsible for its antihypertensive activity. These results showed that there are some scientific reasons that can justify the therapeutic properties of these plants. It is very important to investigate the local use of biodiversity to identify new bioactive compounds, to support biodiversity conservation and sustainable development projects in Madagascar.

**Keywords:** traditional medicine; phytochemicals; Madagascar; pharmacological activities; plants

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**Supplementary Materials:** The poster can be downloaded at <https://www.mdpi.com/article/10.3390/ECMC2022-13160/s1>.

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