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GL5: Bioactive properties of *Ruscus aculeatus* L.: an underexploited subshrub

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Ruscus aculeatus L. is a sub-shrub used in traditional medicine in different parts of the world, namely in Europe and the Iberian Peninsula[1]. Traditionally, the aerial parts are mainly used as diuretics and the underground parts are used for the treatment of urinary tract diseases and as a laxative[2]. In the present work, the aerial part, roots, and rhizomes of *R. aculeatus* were characterized regarding their bioactive properties in order to contribute to the knowledge of the chemical composition of this unexplored species. The plant material of *R. aculeatus* was harvested in April 2019 inside woodlands and hedgerows, in Valpaços, Portugal. Two distinct parts were gathered: the aerial part (cladodes or laminar stems and lateral branches) and the underground organs (rhizomes with roots). Hydroethanolic extracts and aqueous (infusions and decoctions) preparations from the two mentioned parts of the plant were prepared. Multi-resistant clinical bacterial strains (*Enterococcus faecalis*, *Listeria monocytogenes*, methicillin-resistant *Staphylococcus aureus*, *Escherichia coli*, *Klebsiella pneumoniae*, *Morganela morganii*, *Proteus mirabilis* and *Pseudomonas aeruginosa*) were used to screen the antimicrobial activity and the antioxidant activity was evaluated through two different in vitro assays: inhibition of lipid peroxidation in brain homogenates by thiobarbituric acid reactive substances (TBARS) and oxidative hemolysis inhibition assay (OxHLIA). The cytotoxic activity was assayed using MCF-7 (breast adenocarcinoma), NCI-H460 (non-small cell lung carcinoma), HeLa (cervical carcinoma) and HepG2 (hepatocellular carcinoma) human tumor cell lines, and also a non-tumor cell line (porcine liver primary cells, PLP2). All extracts revealed antioxidant activity and potential to inhibit some of the assessed bacteria; except for the infusion of the aerial part (for the lines MCF7 and HepG2) and decoction extracts (line MCF7), all the remaining extracts presented effective results in the inhibition of the tested cell lines; the aqueous extracts of the aerial part and infusions of roots and rhizomes did not show cytotoxic effects in a non-tumor primary cell culture. This preliminary study provided innovative and interesting results in relation to the bioactive properties of this little-studied and explored wild plant.

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1. Masullo M, Pizza C, Piacente S. Planta Med, 2016, 82, 1513–1524.
2. Thorne Research, Inc. R*uscus aculeatus* (Butcher’s Broom) Monograph. Altern Med Rev, 2001, 6, 608-612.