

PRELIMINARY PHYTOCHEMICAL AND BIOLOGICAL PROPERTIES OF A SARDINIAN ENDEMISM: *RIBES SANDALIOTICUM* ARRIGONI

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Ribes sandalioticum (basionim *Ribes multiflorum* Kit. ex Roem. & Shult. subsp. *sandalioticum* Arrigoni, *Grossulariaceae*) represents one of the almost 300 plant endemisms in Sardinia, with an areal comprised among Monte Limbara, Punta Balestrieri, Cima Giugantinu, Marghine and Gennargentu chains (Ballero & Appendino, 2000, and references therein). Since *R. sandalioticum* (RS) has been never investigated before under a phytochemical and functional point of view, the present research reports preliminary data regarding polyphenols, procyanidins and flavonoids content, antioxidant and antimicrobial properties of hydro-alcoholic extracts (Mother Tinctures, MTs) prepared following European Pharmacopoeia (7th ed.) indications. Fresh leaves from spontaneous plants collected at Monte Limbara (Nuoro) were freeze dried and extracted; the same procedures were performed for fresh leaves from *R. nigrum* Sardinian spontaneous plants (RNS) and for commercial Croatian crude drug (leaves) (RNC), in order to have phytochemical, biological and healthy reference with the most used herbal drug belonging to the genus *Ribes*. HPTLC qualitative analyses revealed the presence of kaempferol-3-glucoside, hyperoside, isoquercitrin and chlorogenic acid. Further investigations are in progress to identify two compounds evidenced at Rf 0.35 and 0.80; most probably the latter corresponds to quercetin-pentose. HPTLC performed for RNS and RNC samples revealed the same chromatographic profile except for the detection of chlorogenic acid and the absence of the two bands under investigation, which therefore emerged as chemotypical of RS. Total polyphenols, procyanidins and flavonoids of *Ribes* MTs were then checked employing spectrophotometric methods (Porter *et al.*, 1986). RS revealed a total polyphenol content of 11.99±1.07 µg gallic acid/µl MT). The value was slightly lower (9.37%) than that expressed by Sardinian RNS (13.23±0.95 µg gallic acid/µl MT) and 20.60% higher than that of RNC (9.52±0.78 µg gallic acid/µl MT). For total flavonoids, considered as µg hyperoside/µl MT, RS revealed a 10.46% (4.45±0.30) lower content than that of RNS (4.97±0.39), but 54.83% higher than that of commercial RNC (2.01±0.11). Procyanidins were most abundant in RS (2.18±0.18 µg cyanidin chloride/µl MT), 6.88% higher than in RNS (2.03±0.27) and 83.03% higher than RNC (0.37±0.04). Antioxidant capacity (IC₅₀ µg/ml) was performed through spectrophotometric assays (DPPH, ABTS) and HPTLC-bioautographic assay (Rossi *et al.*, 2011) revealing a bioactivity of RS always intermediate between RNS and RNC samples. HPTLC-bioautography evidenced the flavonoids detected as the most responsible and, interestingly, with an increasing antioxidant capacity in the following 24hs. Antimicrobial activity (bacteria and yeasts) of RS extracts, performed through disk diffusion and HPTLC-bioautographic assays, evidenced very low efficacies (for e.g. *B. subtilis*, MIC: 30.8µg/µl corresponding to MT as is; *C. albicans*, MIC: 15.4µg/µl, corresponding to MT 50% diluted). The involvement of the detected flavonoids and of the chemicals corresponding to Rf 0.35 and 0.80 has been assessed through bioautographic assays (Rossi *et al.*, 2011). In conclusion, this is the first report about the Sardinian endemism *Ribes sandalioticum* and further investigations are in progress in order to better clarify its chemodiversity and possible functional perspectives in herbal healthy market.

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