PRELIMINARY STUDY OF ENDEMIC PLANTS OF SARDINIA AS A SOURCE OF NEW ANTIVIRAL AGENTS

CINZIA SANNA[1], MAURO BALLERO[1], ANDREA MAXIA[1], ARIANNA MARENGO[1], ANGELA CORONA[2], ENZO TRAMONTANO[2], ORAZIO TAGLIALATELA-SCAFATI[3], FRANCESCA ESPOSITO[2]
[1]Department of Live and Environment Sciences, University of Cagliari, Via Sant'Ignazio 13, 09123 Cagliari, Italy; [2]Department of Live and Environment Sciences, University of Cagliari, Cittadella Universitaria di Monserrato SS554, 09042 Monserrato (Cagliari), Italy; [3]Department of Pharmacy, University of Naples "Federico II", via D. Montesano 49, 80131 Naples (Italy)

Within a project aiming to find new agents inhibiting the replication of human immunodeficiency virus type 1 (HIV-1), the etanolic extracts of six endemic plants collected in Sardinia (Italy) have been assayed on the ribonuclease H (RNase-H) activity associated of the HIV-1 reverse transcriptase (RT), a multifunctional viral enzyme which is the most important target in the antiretroviral therapy. The human immunodeficiency virus type 1 (HIV-1) epidemic is still a worldwide health issue despite the availability of more than 20 drugs currently approved for treatment (1). In particular, the selection of drug-resistant viral strains and the toxic side effects due to the chronic drug administration lead to the need of developing new inhibitors with novel mechanism of action and effective on HIV drug-resistant strains (2,3). Taking into account the enormous number and the amazing structural diversity of the currently available plant constituents, the plant kingdom should be further explored as a source of new and diverse antiviral agents.
The Sardinian flora consists of 2408 taxa (4) of which 347 are endemic (5). The geographic isolation has been caused a genetic and metabolic differentiation in these species, as shown by the high number of scientific researches that have been published until now (6,7,8,9,10). Some of Sardinian endemism have also shown very interesting biological and pharmacological activities (11,12,13).
In this preliminary work the following six endemic species have been selected: *Bituminaria morisiana* (Pignatti & Metlesics) Greuter (Fabaceae), *Helichrysum saxatile* Moris (Asteraceae), *Limonium morisianum* Arrigoni (Plumbaginaceae), *Salvia desoleana* Atzei & Picci (Lamiaceae), *Stachys corsica* Pers. (Lamiaceae) and *Tanacetum audibertii* (Req.) DC. (Asteraceae). When ethanolic extracts obtained from aerial parts of all plants were evaluated in biochemical assay on the RT-associated RNase H function, they were able to inhibit this enzymatic activity with IC_{50} values in the 2-47 μg/mL range. Given that relevant and selective activity relates to IC_{50} values below 100 μg/ml for extracts and below 25 μM for pure compounds (14), all our extracts have showed a significant antiviral activity. In particular, the most active extract was the one obtained from *L. morisianum* with an IC_{50} value of 2.29 ± 0.32 μg/mL. This extract will subjected to bioassay-guided fractionation to ascertain the bioactive compounds that could have important biological activities.

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