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CHARACTERIZATION AND HYPERICINS CONTENT IN SOME *Hypericum* SPECIES FROM SICILY

Lazzara, S.[1]; Carrubba, A.[2]*; Napoli, E.[3]
[1]dr, CRA-SFM, Bagheria (PA), Italy
[2]Prof, D/SAF, Università di Palermo, Palermo, Italy
[3]dr, ICB-CNR, Catania, Italy
*alessandra.carrubba@unipa.it

Introduction

Different species belonging to the genus Hypericum are distributed into many environments of Sicily, where they represent an important component of wild Sicilian flora (Giardina et al., 2007). Among these, H. perforatum (St John's Wort) is certainly the most common and famous; its floral parts are largely and traditionally used as a folk herbal remedy for treatment of wounds and burns, and considered an important raw matter for pharmaceutical industry due to their acknowledged antidepressant and sedative properties. Although it is not completely clear yet which compounds are responsible for the biological activity of Hypericum, the European Pharmacopoeia takes as a reference index for evaluating the quality of the drugs, the total content in naphthodianthrones, i.e., in hypericins (hypericin and pseudohypericin) on total dry extract. The concentration of hypericins in sprout and flowers may range from 0,06% and 0,75%, but for market quality a minimum hypericin amount of 0,04% is required (Wagner and Bladt,1994). Other Hypericum species besides H. perforatum contain appreciable hypericins amounts, and therefore could represent alternative raw matter sources for industry.

Method

In 2012 and 2013 a survey activity was performed in Sicily, collecting samples of Hypericum spp. in various areas and at different altitudes. The inflorescences were air-dried, and 5 g approx of the material was ground and treated with ethanol (50 ml) for extraction, being continuously shakered for 72 hh in the dark. The extract was filtered and the filter was washed thrice with 10 ml ethanol each, thereafter it was dried with a rotavapor. In this way, the yield in percent of each sample was calculated. Later on, the HPLC analyses were carried on, in triplicate, by injecting 20 μL of a 10 mg/mL solution in methanol for each extract.
The determination of the content in active substances (hypericin, hyperforin and pseudohypericin) was carried on by means of HPLC diode array analysis. The identification of hypericin was performed by comparison of the chromatographic behavior of the samples with that of solutions of standards (hypericin, pseudohypericin and iperforin) with a known concentration.

Results / Discussion / Conclusion

Species	Provenance	EXTR (%)	HYPC (mg kg^{-1})	HYPF (mg kg^{-1})	PSPC (mg kg^{-1})
H. hirsutum	Sicily	11,7	23,7	0,1	15,8
H. perfoliatum	Sicily	13,8	198,2	0,2	564,2
H. tetrapterum	N-C Italy	20,7	844,6	1,9	583,9
	Sicily	18,5	540,5	1,0	431,9
	Mean	19,6	692,6	1,4	507,9
H. perforatum	N-C Italy	16,6	301,6	1,2	227,1
	Sicily	17,6	345,2	1,1	265,2
	Mean	17,3	330,7	1,1	252,5
EXTR: extract yield (%); HYPC: hypericin d.m. (mg kg^{-1}); HYPF: hyperforin d.m. (mg kg^{-1}) ; PSPC: pseudohypericin d.m. (mg kg-1)					

Exception made for *H. hirsutum*, that expressed very low values, all the other examined species have shown interesting hypericins contents. *H. perforatum* from Sicily exhibited higher values than the other provenances.

Bibliographic References

- Giardina et al., 2007. A catalogue of plants growing in Sicily. Bocconea, 20: 5-582.
- Wagner H., Bladt S. 1994. Plant drug analysis: a thin layer chromatography atlas, Springer, Jena: 368 pp.