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Secondary metabolites of wild plants from Pollino National Park(CS), *Gentiana lutea* L. and *Hypericum perforatum* L. and their cytoprotective and anti-obesity activity.

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**Background:** Plant-derived natural products remain crucial in drug discovery and development, providing a plentiful supply of bioactive molecules. Indeed, plants synthesize a wide variety of secondary metabolites (SMs) that are not directly involved in the growth and development of plants, but play a role in their interaction with environment, ensuring the continued existence of the organism in its ecosystems. We have analysed two native species, *Hypericum perforatum* and *Gentiana lutea*, from Pollino National Park, in the Mediterranean area, investigating the SMs content and the cytoprotection and anti-obesity activity.

**Material and Methods:** *Hypericum perforatum* and *Gentiana lutea* were collected in Pollino National Park at different altitudes and during the phenological stages. Leaves, flowers and fruits samples were treated by two different protocols: 1) immediately fixed in N<sub>2</sub> liquid and 2) allowed to dry for 3-10 days in oven. Then, in both cases, SMs were extracted from tissues with EtOH 80% for 24h. Extracts were subjected to HPLC and TLC analysis, the antioxidant activity and polyphenols content were also evaluated. Further, selected concentrations of each tissue extract were screened to investigate the cytotoxicity in 3T3-L1 cells by MTT assay. The anti-obesity potential of the extracts was tested on 3T3-L1 adipocytes-like by Oil Red O staining.

**Results:** Preliminary chromatograms showed specific tissue profiles. We have characterized the components Gentiopicroside and Isogentisin for *Gentiana Lutea* L. and Hypericin, Pseudohypericin, and the corresponding proto-forms, for the *Hypericum perforatum* L. At low concentrations the extracts showed a cytoprotective effect against ethanol-induced damage in 3T3-L1, moreover, we observed in 3T3-L1 adipocytes-like, a statistically significant reduction of lipid content, likely related to an inhibition of adipogenesis.

**Conclusion:** The results show that the extracts used have cytoprotective and potentially anti-adipogenic activities of considerable interest, suggesting the promising beneficial effect of the active ingredients underlying them.