

ANTIOXIDANT PROPERTIES OF INFUSIONS FROM LEAVES AND INFLORESCENCES OF *ACHILLEA MILLEFOLIUM* SSP. *COLLINA B.* BY USE OF CHEMICAL AND BIOLOGICAL ASSAYS

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Introduction. Several lines of evidence indicate that antioxidants may help preventing heart diseases, cancer, aging and neurodegenerative diseases. Many medicinal plants contain large amounts of antioxidants such as polyphenols. Among these plants, *Achillea millefolium* L. species are traditionally used as diuretic, emmenagogues, in wound healing, as well as for the treatment of gastrointestinal disturbances. The aim of this study was to evaluate the antioxidant and cytoprotective properties of infusions from leaves and inflorescences of *Achillea millefolium* ssp *collina B* and the relationship with their total phenolic content, in order to point out their nutraceutical properties.

Methods. The infusions were prepared by extracting aliquots of 0.05 g of inflorescences or leaves with 10 mL of boiling water for 5 min. Antioxidant activity was determined with DPPH reagent. Oxidative damage was induced in PC12 cells cultured under standard conditions in the presence of H₂O₂ 300µM. Cell viability was evaluated by MTT assay, and membrane lipid peroxidation was assessed by measuring malondialdehyde (MDA) using the thiobarbituric acid-reactive assay. Total phenols were determined with Folin-Ciocalteu reagent.

Results. In DPPH assay, the antioxidant activity was exhibited by both inflorescences (1/IC₅₀ range: 4.35-4.72) and leaves infusions (1/IC₅₀ range: 7.18-7.87). Treatment with H₂O₂ reduced cell viability to 25.27±10.81% and increased MDA to 134.72±24.58% of control values (n=9-4). Infusions from both inflorescences and leaves (0.0004-1mg/ml) significantly counteracted the effect of H₂O₂ on both parameters. Leaves phenolic content was ranging 49-49.36 mg/g dry weight and was significantly higher than in inflorescences (31.39-32.86). Antioxidant activity was directly correlated with total phenolic content in both inflorescences and leaves ($r^2 > 0.95$).

Conclusion. Antioxidant properties of *Achillea collina*, confirm the salutistic value of this plant, particularly for leaves infusions prepared according to the traditional use.