

**IN VITRO ANTIOXIDANT, ANTIMUTAGEN AND ANTI-INFLAMMATORY
ACTIVITY OF EXTRACTS AND STILBENES FROM *Glycyrrhiza glabra* LEAVES**

¹CRISTANI M., ¹SAIJA A., ¹D'ARRIGO M., ¹NACCARI C., ²RUBERTO G., ²BIONDI D.M., ¹TROMBETTA D.

¹Dept. Farmaco-Biologico, School of Pharmacy, University of Messina, Italy - ²CNR Institute of Biomolecular Chemistry - Catania, Valverde, Catania, Italy

The aerial parts of *Glycyrrhiza glabra* are scarcely used and always considered as waste products. The chemical composition of three extracts from the leaves of Sicilian *G. glabra* (methanol, hexane and ethyl acetate extracts) has been recently characterized; in particular five new dihydrostilbene derivatives and four previously known flavonoids were found in the ethyl acetate extract (1). In the present study we evaluated *in vitro* the radical scavenger activity as well as the anti-inflammatory and antigenotoxic effects of the three extracts mentioned above and of three stilbenes contained in them (α - α' -dihydro-3,5,3'-trihydroxy-4'-methoxy-5'-isopentenylstilbene (GA-23), α , α' -dihydro-3,5,4'-trihydroxy-5'-isopentenylstilbene (PA-82), e α , α' -dihydro-3,3'-dihydroxy-5 β -D-O-glucopyranosyloxy-4'-methoxystilbene (DO-07)). The influence of the extracts and stilbenes on the metabolism of arachidonic acid was evaluated by studying their inhibitory activity on activity and expression of cyclooxygenase using human whole blood (2). Furthermore the antigenotoxic and mutagen activity of the stilbenes and extracts was studied *in vitro* by means of the SOS-chromotest test on *Escherichia coli* PQ37 strain. Finally, the DPPH test was used to evaluate the antioxidant activity of the three extracts and the three stilbenes. The methanol extracts and the DO-07 stilbenes show a the highest antioxidant activity in the DPPH test. The ethyl acetate extract proved to inhibit both the COX isoforms; in particular GA-23 was the most active stilbene on the COX-2 mediated pathway, while the other stilbenes show a discrete inhibitor activity on the COX-1 pathway. Moreover, these extracts and stilbenes exhibited a good antigenotoxic activity in the SOS-chromotest comparable with that of Trolox. One can speculate that the extracts of *G. glabra* leaves and the stilbenes isolated from them might could be used for treatment of pathologies related to oxidative and inflammatory processes.

References

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