

Bioassay-guided isolation of antioxidant constituents from the methanol extract of *Artemisia oliveriana* Bunge

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Introduction

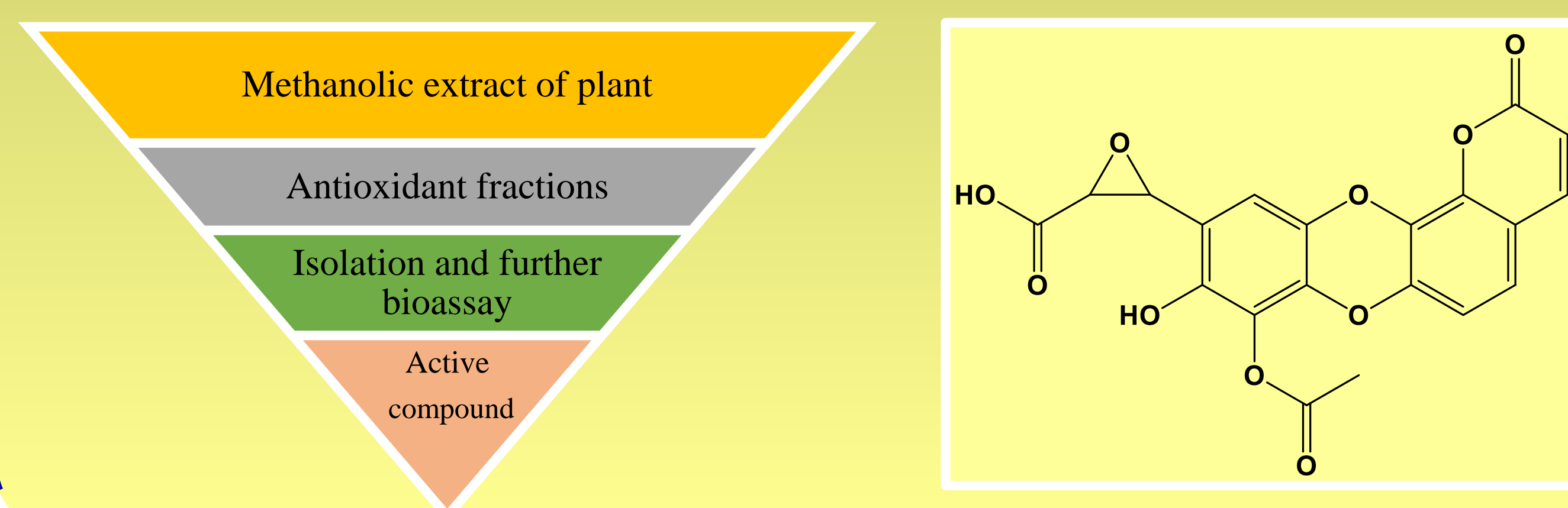
Today, medicinal plants have been attracted by many researchers in order to discover natural biologically active compounds. *Artemisia oliveriana* Bunge is a native Iranian plant growing mainly in the east of Isfahan province. Ethnopharmacological, medicinal and phytochemical studies have revealed the antimalarial, antimicrobial and anticancer activities of the plant. Purpose of this study was the bioassay-guided isolation and identification of antioxidant compounds from the methanol extract of the plant [1].

Experimental

Bioassay-guided isolation was performed on a crude methanolic extract of *A. oliveriana* using chromatography techniques [2]. So, methanol extract of the plant was divided into two aqueous and hexane fractions by a liquid-liquid extraction. For obtaining phytochemical profile of the aqueous fraction, it was subjected to an analytical high-performance liquid chromatography (Analytical HPLC). After optimization and scaling up the elution method, a preparative HPLC was applied to fractionate the extract to 12 sub-fractions (F₁-F₁₂). The antioxidant effect of sub-fractions was measured by a DPPH free radical scavenging assay. For isolation and purification of effective compounds of this active fraction, it was subjected to another preparative HPLC system following by antioxidant tests on purified compounds. 1D and 2D nuclear magnetic resonance (NMR) technique including (¹HNMR, ¹³CNMR, COSY, HMQC and HMBC) were used to elucidate the structure.

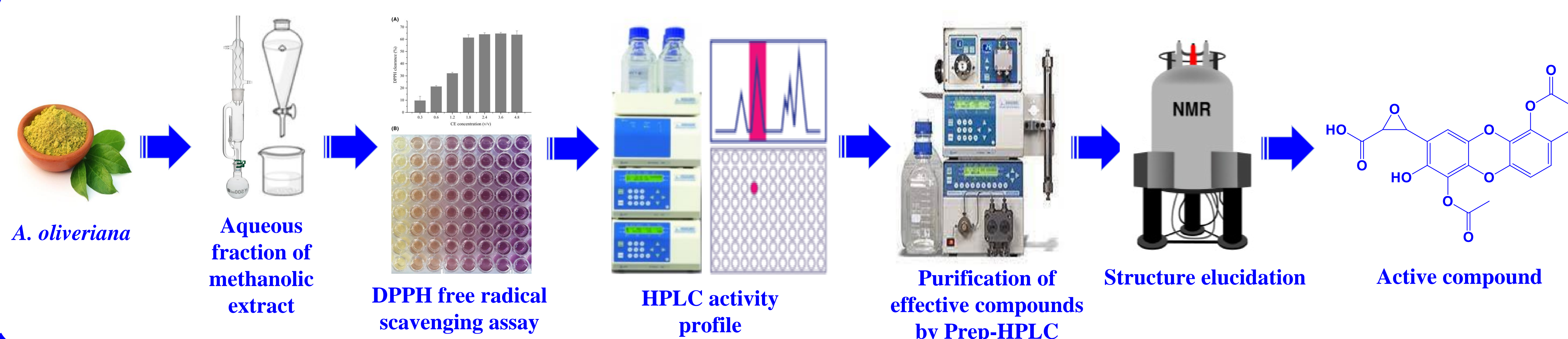
Result and Discussion

Fraction F₄ showed the highest antioxidant property by an inhibition of 85.85% of DPPH free radicals at a concentration of 100 µg/mL. This attempt led to the isolation of a structurally new coumarolignane (F₉) skeleton. It revealed a high antioxidant activity with 80.93% inhibition of free radicals at the same concentration.



Conclusion

This study showed a good agreement with other researches on antioxidant activity of *Artemisia* genus [3]. The obtained results show good antioxidant effects from the compounds identified by spectroscopy methods from the extract of this plant, which can be used for its medicinal potential due to the nativeness of this plant. Further studies such as in vitro and in vivo analyses are suggested to evaluate the anti-cancer activity of the active compound. This compound could be a promising anticancer agent because it showed remarkable antioxidant effects.



References

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