

Anti-Elastase and Anti-Tyrosinase Activities of *Cistus salviifolius* and *Cistus laurifolius* Leaf Extracts: Potential Natural Agents for Skin Regeneration and Depigmentation

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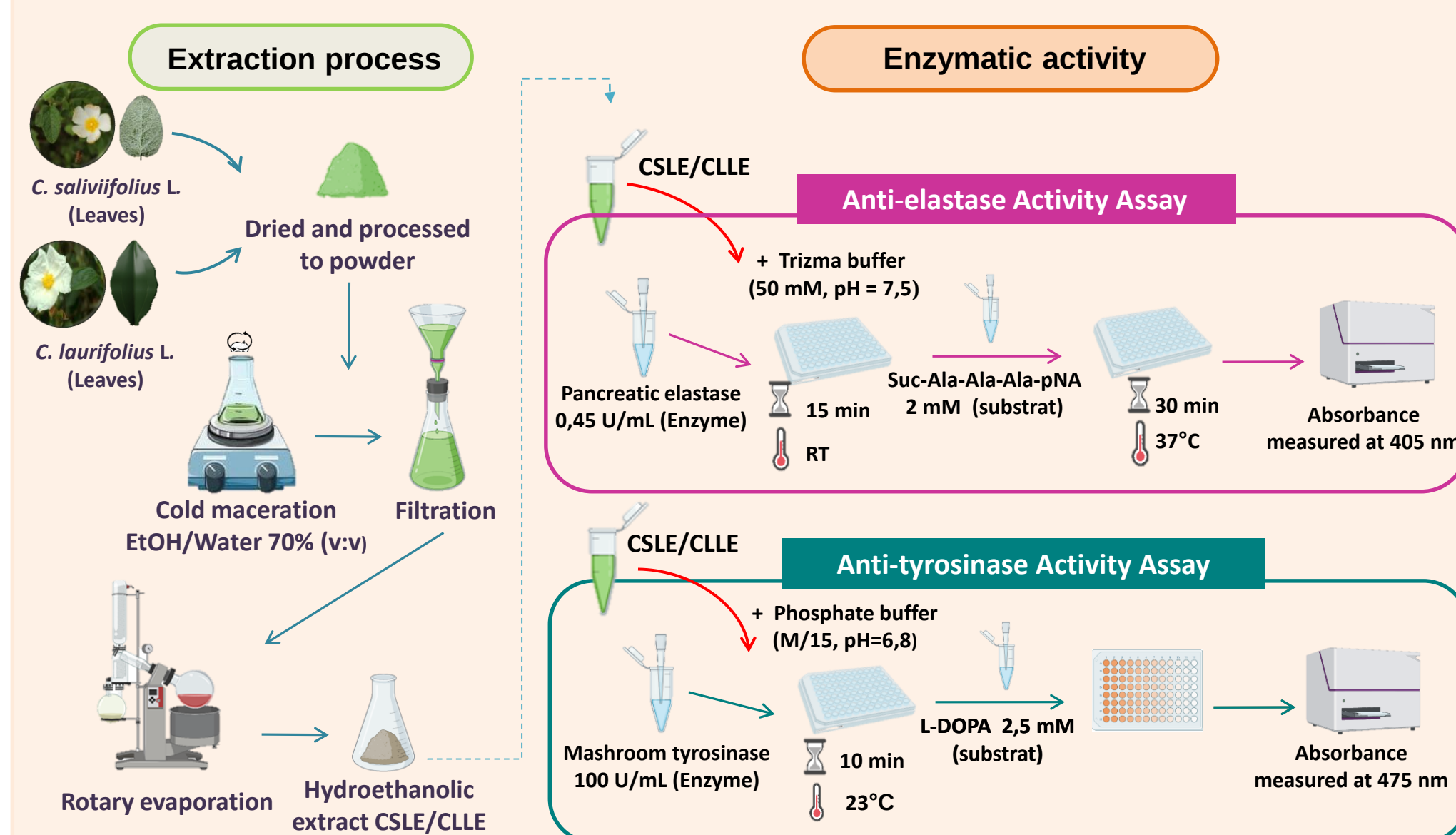
INTRODUCTION & AIM

Elastase and tyrosinase are two enzymes of particular relevance in the context of dermal disorders. The overactivity of elastase can lead to excessive degradation of elastin, resulting in reduced skin elasticity and premature aging [1]. Tyrosinase, on the other hand, plays a key role in melanin synthesis, and its dysregulation can contribute to pigmentation disorders [2].

Plant-derived ingredients are a major source of bioactive compounds in cosmetic and pharmaceutical formulations. These compounds exhibit antioxidant, antibacterial, astringent, regenerating and skin-lightening activities [3,4], which has stimulated considerable interest in their potential as natural anti-aging and depigmenting agents.

The present study aims to evaluate, *in vitro*, the inhibitory activities of hydroethanolic leaf extracts of *Cistus salviifolius* (CSLE) and *Cistus laurifolius* (CLLE) using spectrophotometric enzyme assays.

METHODS



RESULTS & DISCUSSION

Table 1. Extraction yield of both extracts CSLE and CLLF.

Extract	Yield (%)	Organoleptic characteristics
CSLE	15.2 ± 1.0	Dark reddish-orange powder characterized by a distinct and intense aroma
CLLE	15.8 ± 0.8	Viscous consistency with a dark brown coloration

Figure 1. Visual appearance of CSLE (A) and CLLF (B).

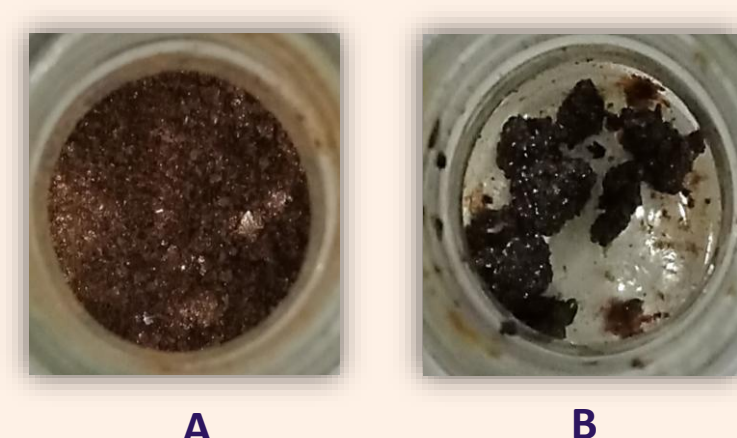


Table 2. Half-Maximal Inhibitory Concentration (IC₅₀) of CSLE and CLLF extracts against elastase activity.

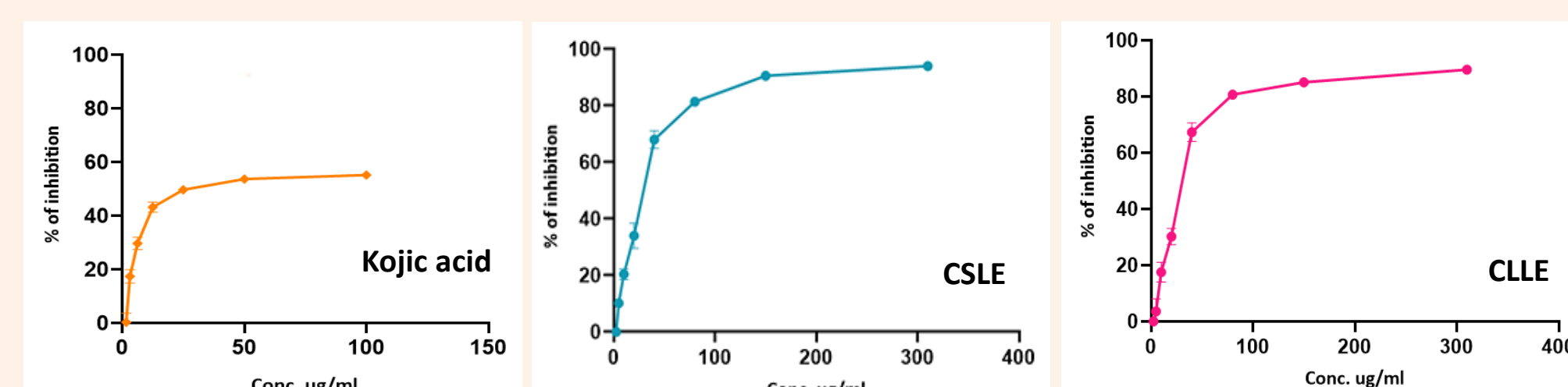
	CSLE	CLLE	Elastatinal
IC ₅₀ µg/mL	43.02 ± 1.54	218.2 ± 2.58	0.5 ± 0.06

- Significant anti-elastase effect of both extracts CSLE and CLLF.

Table 3. Half-Maximal Inhibitory Concentration (IC₅₀) of CSLE and CLLF extracts against tyrosinase activity.

	CSLE	CLLE	Kojic acid
IC ₅₀ µg/mL	28.7 ± 1.80	30.2 ± 1.9	31.1 ± 1.6

Figure 2. Variation in tyrosinase inhibition percentage with increasing concentrations of CSLE, CLLF, and Kojic acid (Reference standard).



- The differences in IC₅₀ values among kojic acid, CSLE, and CLLF are not statistically significant. However, kojic acid reached a maximum inhibition of approximately 50–60%, whereas CSLE and CLLF achieved higher inhibition levels, exceeding 80%.

CONCLUSION

- Both *Cistus salviifolius* leaf extract (CSLE) and *Cistus laurifolius* leaf extract (CLLE) demonstrated significant inhibitory effects against elastase and tyrosinase.
- CSLE exhibited significantly stronger elastase inhibition (IC₅₀ = 43.0 µg/mL) compared to CLLF (IC₅₀ = 218.2 µg/mL).
- Both extracts proved to be more effective tyrosinase inhibitors than kojic acid.

These findings highlight the potential of CSLE and CLLF extracts as promising natural sources of anti-aging and depigmenting agents.

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