

Exploring the Bioactive Benefits of Hops for Skincare and Health Applications

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INTRODUCTION & AIM

➤ *Humulus lupulus* L. is well-known as the raw material in the brewing industry. The hop cones, rich in polyphenolic compounds and acids are widely used to preserve beer and to give it a characteristic aroma and flavor. Hops have been extensively investigated for their multifunctional properties across various industries, including food, cosmetics, and pharmaceuticals.¹



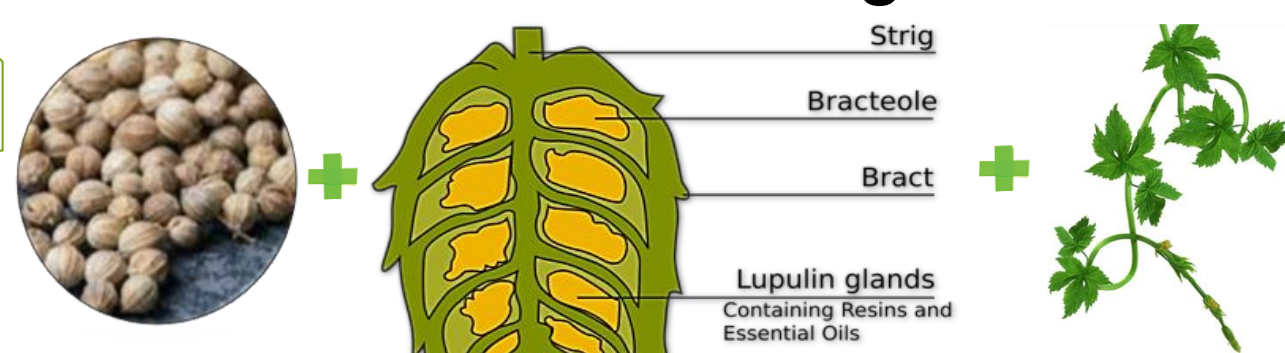
Figure 1. *Humulus lupulus* L.

➤ The main goal was to use UV-VIS and HPLC spectrophotometric techniques to assess the chemical composition and pharmacological features of hydromethanolic hop extracts.

METHOD

This study collected samples from several hop cultivars (Nugget, Cascade, Chinook) and wild-type hops from the Bragança region, Portugal. The plant materials studied comprised cones, stems, and leaves, while in the case of the Nugget by-product, additional plant parts such as seeds, bracts, and vegetative tissue.

By-product



RESULTS & DISCUSSION

- ✓ The hydromethanolic extracts were found to contain bioactive phenolic compounds, including isoquercetin, kaempferol, rutin, and apigenin which were the most present flavonols.²
- ✓ The extracts exhibited potent antibacterial activity against *Cutibacterium acnes*.

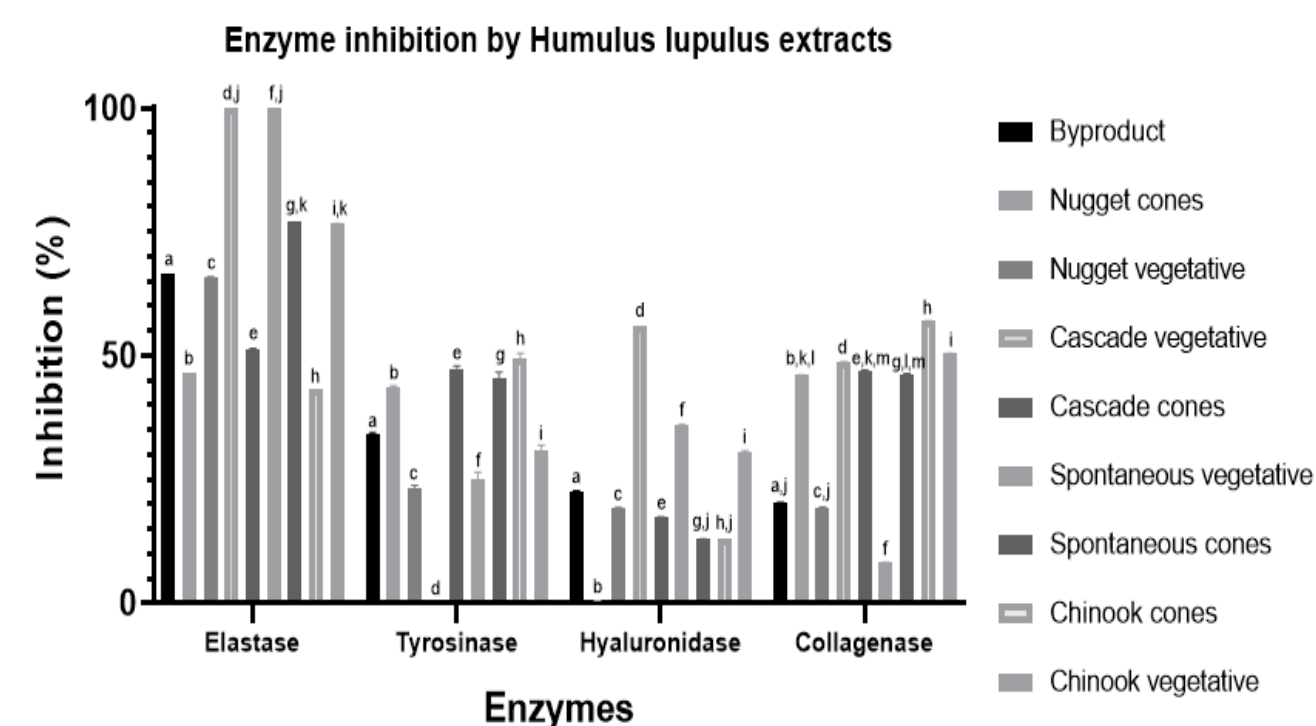


Figure 2: Comparison of enzyme inhibition by *Humulus lupulus* extracts.*

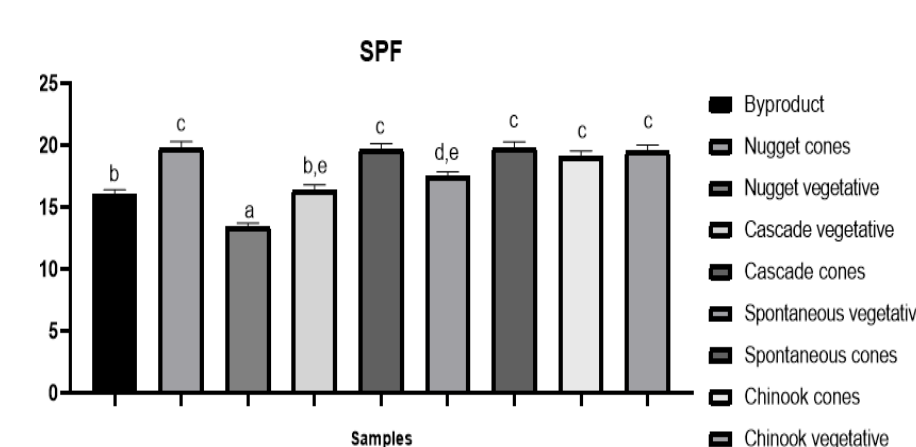


Figure 3. Sun Protection Factor (SPF) values for different *Humulus lupulus* extracts.*

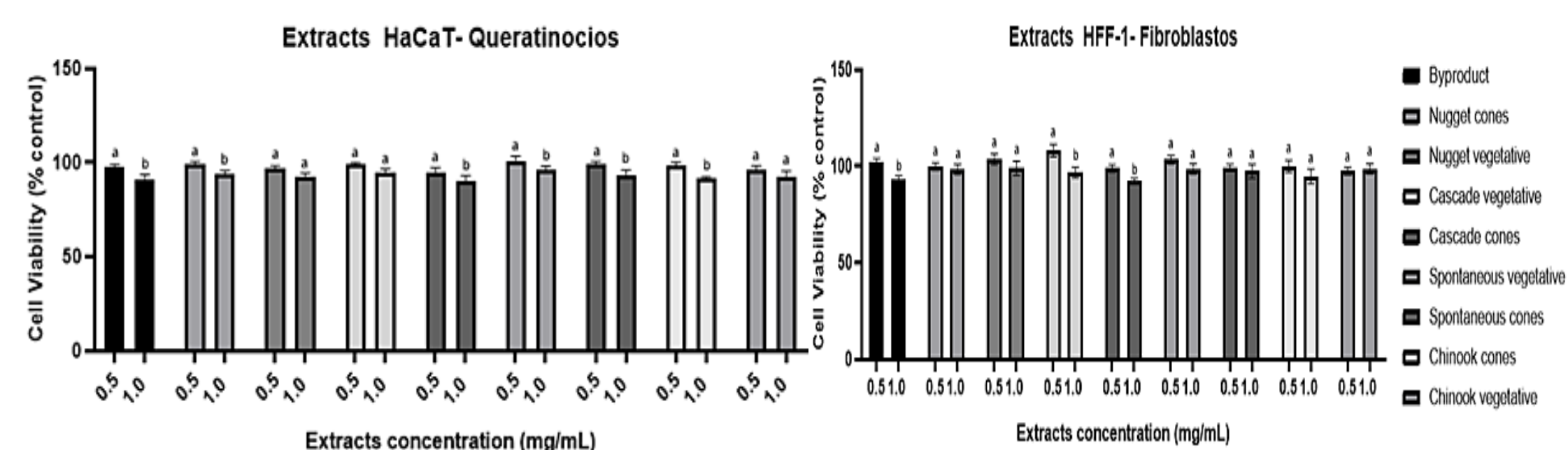


Figure 4 and 5. Cell viability against *H. lupulus* extracts.

*Groups that share the same letter do not show statistically significant differences.

CONCLUSION

These bioactivities highlight the potential of hops as a valuable source of bioactive compounds for future applications in pharmaceutical, cosmetic, and nutraceutical development.

FUTURE WORK / REFERENCES

1. Astray, G.; Gullón, P.; Gullón, B.; Munekata, P.E.S.; Lorenzo, J.M. *Humulus lupulus* L. as a natural source of functional biomolecules. *Appl. Sci.* 2020, 10, 5074
2. Kowalska, G., Bouchentouf, S., Kowalski, R., Wyrostek, J., Pankiewicz, U., Mazurek, A., Włodarczyk-Stasiak, M. (2022). The hop cones (*Humulus lupulus* L.): Chemical composition, antioxidant properties and molecular docking simulations. *Journal of Herbal Medicine*, 33, 100566.