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Evaluation of the potential production in hydroponics of several genotypes of *Cynara cardunculus* L. and study of the biological activity of its extracts

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INTRODUCTION

As part of the development of good agro-ecological practices, this research aims to contribute to the substitution of chemical phytosanitary products by biopesticides.

The aim of this PhD thesis is to control the different environmental parameters that have an influence on the physiology of *Cynara cardunculus* L. cultured under a fully controlled environment in order to determine the best combination to increase the production of molecules with high added value.

OBJECTIVES

- Extraction optimization
- Optimization of the culture of *Cynara cardunculus* L.
- Characterization of extracts and identification of molecules of interest
- Study of the herbicidal and fungicidal activity of *Cynara cardunculus* L.

Cynara cardunculus L.

Cynara cardunculus L. comprises three different varieties. However, there is the globe artichoke , cultivated cardoon (*C. cardunculus* L. var. altilis) and wild cardoon (*C. cardunculus* L. var. sylvestris). All these species belong to the Asteraceae family. *Cynara cardunculus*, is a salt-tolerant plant that grows naturally in difficult conditions characterized by high temperature, high salinity and drought in summer.

This plant could be used in several fields, and has a therapeutic potential as a diuretic, choleretic, cholagogue, antidiabetic and antimicrobial. The edible flower is said to have antimicrobial and anti-HIV potential, as well as for their anti-inflammatory effects, anti-genotoxic and anti-obesity .

Phytotoxic effects of *C. cardunculus* on weeds has been proven in previous works. These allelopathic properties are linked to their high content in terpenoid and polyphenolic compounds (Ben Kaab *et al.* 2020),

Fig 1. ***Cynara cardunculus*** **L.**

Fig 2. Effect of different ***C. cardunculus*** **L. extracts on weed growth**

PRELIMINARY TEST

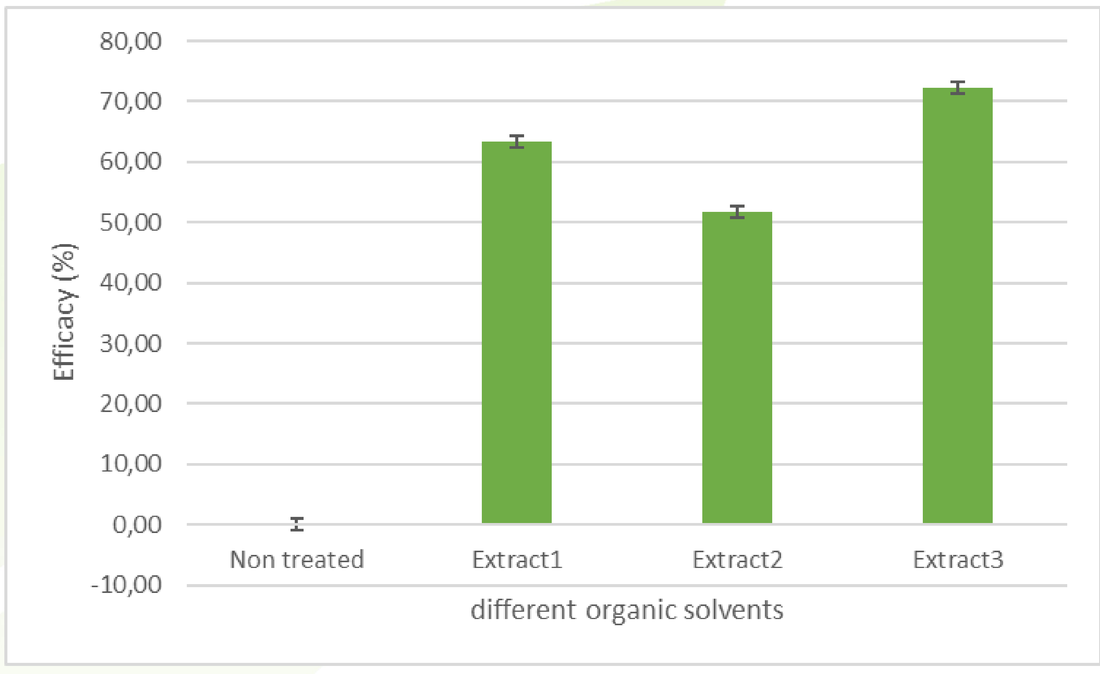

Fig 3. Effect of extraction solvents on the herbicidal activity of ***C. cardunculus*** **L.**

Conclusion

The results of the herbicidal activity of the extracts of Cynara cardunculus L. during the preliminary tests are very promising which is taking place under the supervision of Prof. Jijakli, in the of Laboratory of Integrated and Urban plant Pathology. As my PhD program continues for the next three years, I will work to achieve the objectives mentioned above.

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