Antioxidant activity, phenolic profile, cytotoxicity and genotoxicity of plant extracts

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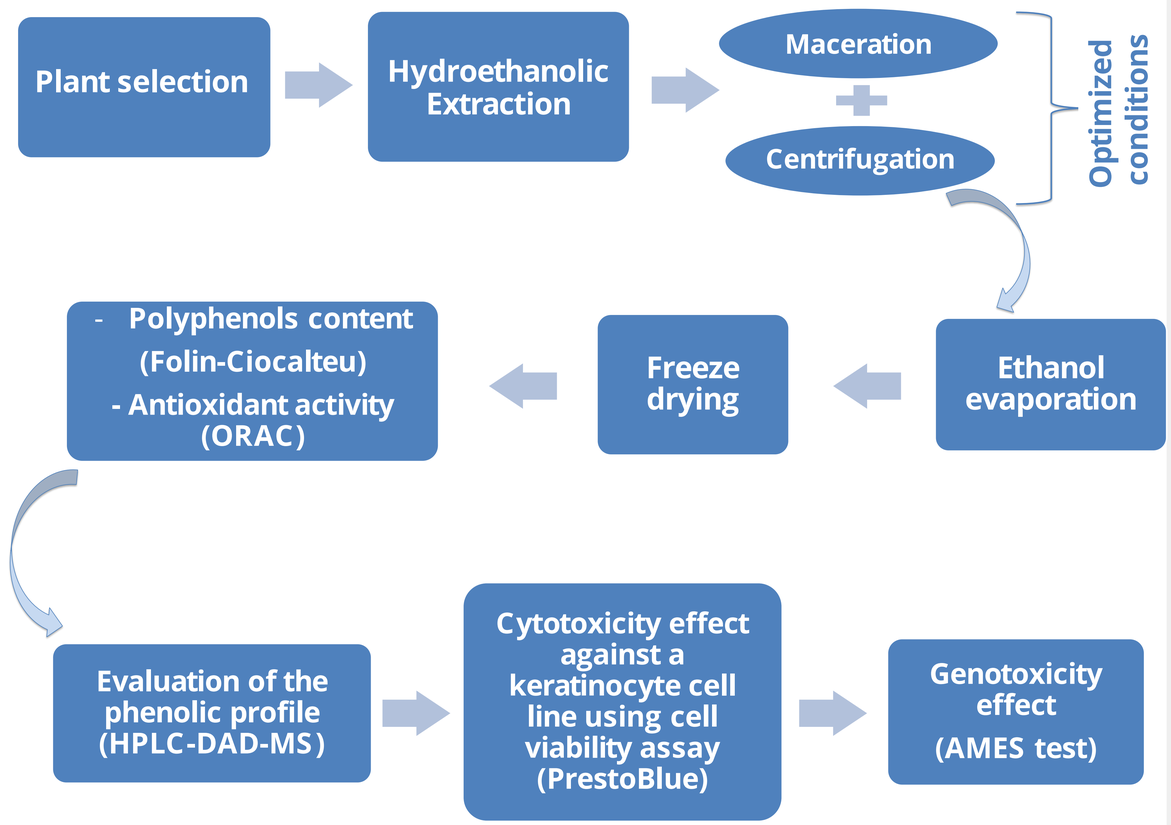
Introduction

The outbreak of COVID-19 disease caused by SARS-CoV-2 forced the scientific world to search for new alternatives to help control the virus. Plant extracts have natural compounds that might provide a starting point for the research on the use of plants as an excellent source of new agents against viruses, including COVID-19 to be included in disinfectants, fabrics or other materials.

Objectives

The objective of this study was to evaluate the potential of different extracts obtained from medicinal plants cultivated under controlled conditions in Portugal to be applied against SARS-CoV-2.

Methods



Results

Table 1 - Results of polyphenols content, antioxidant activity and phenolic profile of extracts.

Extract	Folin-Ciocalteu Polyphenols content (mg EAG/g extract)	ORAC (µMol Trolox/mg extract)	Phenolic profile
Echinacea	248.09 ± 4.06	2591.79 ± 19.49	Caftaric acid, cis-chicoric acid and trans-chychoric acid
Rosemary	227.01 ± 5.75	5285.35 ± 60.04	Protocatechuic acid, Kaempferol-O-glucuronide, Acetyluteolin-O-glucuronide
Laurel	204.54 ± 1.78	3702.82 ± 86.52	(Epi) catechin-hexoside, (+)-Catechin, (-)-Epicatechin, Kaempferol-O-glucuronyl-hexoside
Thyme	250.36 ± 2.51	5508.47 ± 88.45	Kaempferol-O-glucuronide, Apigenin-O-Glucoside, Hispidulin-O-Glucoside
Rock rose	274.20 ± 3.14	2855.03 ± 9.75	Galloyl glucoside, Punicalin I isomer, Punicalin II isomer

No toxicity was observed towards the keratinocyte cells and none of the extracts showed mutagenic effects.

Conclusions

- Based on the results of safety and high polyphenols content of the extracts they demonstrate a great potential as antimicrobial agents.
- This will allow the design of new experiments aimed at evaluating the antiviral activity of these extracts, especially against SARS-CoV-2.

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