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Experimental attempts to increase the performance and oxidative stability of cooking oils for food use and limit the formation of artifacts harmful to health

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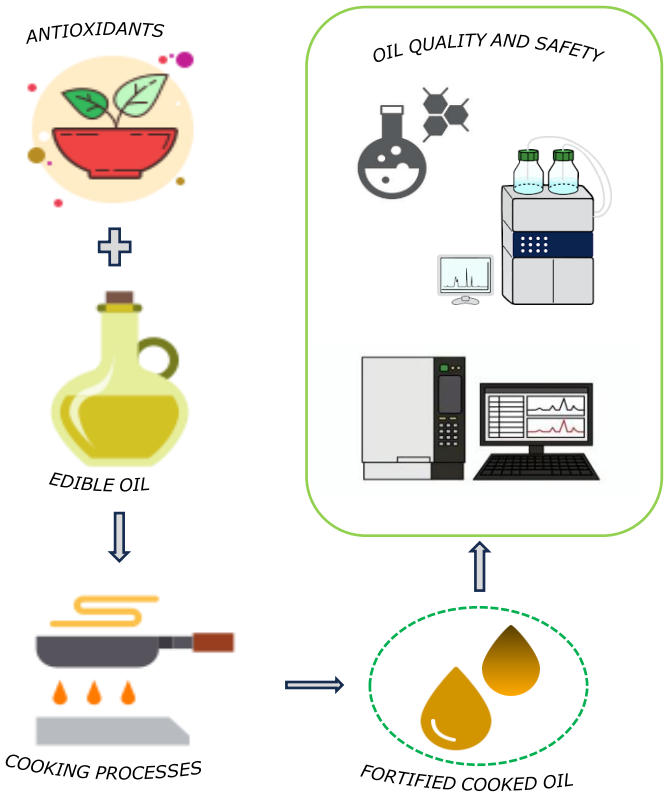
STATE OF THE ART

Vegetable oils are often used in cooking processes, during which thermos-oxidation is the most common degradation phenomenon (Choe et Min, 2006). There are several strategies adopted to avoid the chemical alteration of oils during heating and increase their oxidative stability, receiving particular attention from researchers the addition of antioxidants (Grosshagauer et al, 2019) and the incorporation of bioactive compounds (Lourenço et al, 2019).



Synthetic antioxidants such as butylated hydroxytoluene (BHT) and butylated hydroxyanisole (BHA) have been usually preferred to delay oxidation reactions of oils (Carocho et al, 2013). However, some harmful effects of these antioxidants have been reported as they would cause toxic and carcinogenic effects (EFSA, 2012). For this reason, over the last years there is a tendency to replace synthetic antioxidants with natural antioxidants, eventually, derived from agricultural and food industry by-products (Alizadeh et al, 2016).

AIMS

This PhD thesis research project is aimed at the development of innovative formulations of fortified edible oil that can have improved oxidative stability in different cooking processes. Fortification will be made by antioxidants, preferring those from natural origin and unexplored. The possibility to reduce the formation of harmful compounds and the feasibility of new analytical methods for oil quality monitoring will be also evaluated.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
A1 - Bibliographic research																								
A2 - Selection and antioxidants characterization																								
A3 - Formulation of fortified oil and performance assessment in cooking																								
A4 - Development of analytical methods to evaluate the quality and safety of oils used in cooking processes.																								
A4.1 - Activities in the company																								
A4.2 - Activities abroad																								
A5 - Data processing and writing of scientific publications.																								

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