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Plants, seaweeds, microalgae and food by-products as natural sources of functional ingredients obtained using pressurized liquid extraction and supercritical fluid extraction

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HIGHLIGHTS

- Recent developments of subcritical and supercritical fluid extraction
- Pressurized liquid extraction obtains bioactive components from natural sources
- Supercritical fluid extraction obtains bioactive components from natural sources
- Plants, by-products and algae are interesting sources of functional ingredients
- Compressed fluid-based technologies are useful for biorefinery processes

ABSTRACT.

We present an up-to-date review on the use of subcritical and supercritical extraction processes to obtain functional bioactive compounds from different natural matrices, including plants, food by-products, seaweeds and microalgae. The ever-increasing demand for natural bioactive compounds is fostering the search for new underexplored natural sources for this kind of component. The use of advanced sustainable extraction techniques to extract and to purify the bioactive compounds is of the utmost importance. Pressurized liquid extraction and supercritical fluid extraction are two of this kind of technique that have already been widely employed to recover bioactives from different sources. We comment on the most relevant recent developments and improvements involving these natural sources and discuss the future evolution of the use of these two extraction processes.

Keywords:

Algae
Bioactive
Food by-product
Functional food
Green extraction
Microalgae
Nutraceutical
Plant
Subcritical water extraction
Supercritical fluid extraction

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