ABSTRACT TEMPLATE

Overcoming Matrix Effects in protein extraction to valorize the potential of agri-food by-products.

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Food chains generate a high volume of waste and byproducts, that have a relevant environmental and economic impact (1)(2). In this context, the valorization of agri-food-derived matrices represents a milestone in the circular economy philosophy, enabling in-depth studies of the molecular characteristics of residual proteins that could be tested through *in vitro/in vivo* approaches. However, the search for biological activities (e.g., biodefense or biostimulant) is strongly hampered by matrix effects due to macromolecular conformational changes and interactions occurring during food processing. Overcoming these challenges involves the application of diverse biochemical strategies, rooted in the chemical features of macro and micro-constituents, along with enzymatic treatments. These strategic approaches enable extensive characterizations of selected polypeptides or the utilization of "omic" methods.
In this work, we present some examples of strategies used for the molecular characterization of two by-products from food industry, namely okara from soybean and seeds from tomatoes.
Our findings will allow the knowledge-based potential exploitation of these molecules obtained with innovative and mild technologies. Private and public companies operating in the nutraceutical, food packaging and agricultural fields and oriented to the implementation of new commercial applications may benefit from this approach.

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