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Bio-based active molecules and innovative processes for foods and beverages

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Besides the recent achievements in obtaining natural agents to act as preservatives, colorants, sweeteners, among others, new formulations including functional foods, energetic drinks, as also ready to eat foods are a hot topic of the current research with a big market demand.
Taking into account the diversity of bioactive molecules/secondary metabolites present in nature, matrices such as plants, mushrooms as also byproducts/bioresidues from the industrial sector are promising sources of these agents. Therefore, the main goal is to obtain these molecules and find viable and sustainable applications. Mushrooms for instance, especially mushroom residues (broken ones, non-commercialized), are interesting matrices to obtain added value molecules such as phenolic acids, statin like molecules and beta-glucans, components with high bioactive potential, namely hypocholesterolemic activity either by inhibiting cholesterol absorption or by decreasing the cholesterol synthesis. Individually or in synergic ratios, these molecules are being exploited as possible natural based hipocholesterolmic formulations under the Mush4Chol project to be included in functional foods. Taking advantage of the high capacity of mushrooms in assimilating components from the growing substrates, ongoing research is also being conducted to elicit these bioactive molecules.
Within the food sector but regarding the processing technologies, an innovative approach has been the development of "ready to eat" formulations, involving important and challenging research in all the processes since dehydration and further hydration capacities of the final products, allowing the easier transportation, availability and maintaining the same properties.
Similar to the food industry, also the beverage industry is investing in innovative drinks, such is the case of functional, energetic/sport beverages. In this field, completely natural isotonic drinks were developed based on thermal waters, apple juice and hibiscus extract, enriched in minerals and in bioactive molecules. Moving to the beer sector, research is also being conducted within the Bio4Drinks project, aiming at preserving the aromatic profile of craft beers, that due to oxidation processes presents a very reduced shelf-life, an issue that can be overcome using natural extracts with preservative capacity, increasing the beer storage time without alteration in the organoleptic and sensorial profiles.

Keywords: Functional foods, Isotonic drinks, bio-based active agents, craft beers.

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