RETASTE Conference Abstracts
Vol. 2 RETASTE-VAL-240-Oral
Herakleion, Greece, 20-21 October, 2022

Chestnut Components as Real Alternatives to Artificial Preservatives for the Beverage Industry

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Abstract

In the beverage industry there is a need to find natural products that can replace the addition of synthetic additives that aim to conserve, intensify or improve their physicochemical, biological or sensory characteristics. Some examples are acidity regulators, non-caloric sweeteners, dyes, preservatives (sulphites), among others, that have been associated with toxicity effects, such as sulphites (E220-228) which are normally used to preserve. Thus, there is a growing demand for new sources of potential natural additives, in order to be able to replace synthetic additives. The agri-food by-products resulting from some sectors are often rich in functional compounds, such as polyphenols, which are currently underutilized (compost or animal feed) and their potential added value is often lost. In this sense, there is an opportunity to value and transform by-products into value-added products, which may include new natural additives or food ingredients, which can be incorporated into other products. Therefore, based on the exhaustive characterization of thousands of natural matrices and agri-food bio residues, the chestnut male flowers were selected to preserve wines, given their outstanding antioxidant and antimicrobial properties and no toxicity for the human organism. At the moment, several wine varieties were already produced using this ingredient, allowing the complete elimination of sulphites addition in the wine making process. These findings were national and internationally patented and leaded to the creation of a *spin off* dedicated to the exploitation of this technology. From the obtained results, the use of chestnut flowers in the wines causes no significant interference in the

physical and in the sensorial properties, also highlight the ability to intensify the red colour of red wines. Currently the entire chestnut value chain is being exploited, as also the wine residues along the producing chain to identify other promising ingredients with the capacity to preserve wines and beers, as also to promote the flavour fixation on flavoured waters, under the frame of the Bio4Drinks financed project.

Keywords: Chestnut, beverages, sustainability, natural preservatives, polyphenols.

Acknowledgments: FCT, Portugal for financial support through national funds FCT/MCTES to CIMO (UIDB/00690/2020); national funding by FCT, P.I., through the institutional scientific employment program-contract for L. Barros, M.I. Dias, R. Calhelha contracts, and through the individual program contracts of S.A. Heleno and M. Carocho. This work was financed by the European Regional Development Fund (FEDER) through the North 2020 Regional Operational Program, within the scope of the Corporate R&D project Bio4Drinks Co-Promotion: Obtaining Multifunctional Natural Ingredients for the Beverage Industry (NORTE-01-0247-FEDER- 113508).