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EXPLOITATION OF AN OLIVE OIL INDUSTRY BY-PRODUCT: OLIVE POMACE AS A SOURCE OF FOOD AROMA COMPOUNDS

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Italy is the second largest producer in the world of olive oil, preceded only by Spain, with a national production of over 6 million quintals per year. Although olive oil can be considered as a “green gold” all over the world, the treatment of its by-products is a critical aspect to cope with. Indeed, the polluting character of such by-product together with its high costs for an effective disposal strongly penalize the olive oil industry. In particular, 50 % of oil production costs depend on its waste disposal. Among the different food by-products, approximately 3,000,000 tons of olive pomace (kernel, pulp and peel) are yearly produced in Italy, being their costs around 70 euros/ton. Currently olive pomace is used for the extraction of the pomace oil or the production of feed and compost. An alternative to its disposal to get a better exploitation is its use as a feedstock for the production of bio-based compounds and energy.

In this context, the aim of this work was to evaluate a potential exploitation of olive pomace as a feedstock for the production of flavours of interest for the food industry by yeasts. More than 50 yeast strains were isolated from olive and olive oils, and then tested for their ability to grow by using olive pomace as the main nutrition source. Subsequently 8 strains were selected, and their biotechnological potential to accumulate natural aromatic molecules relevant for the food and cosmetic market by olive pomace fermentation was evaluated.

Among the 8 selected strains, one yeast showed very promising results since able to produce high quantities of ethanol and phenyl ethyl alcohol. Moreover, results showed that three strains were characterized by the production of relevant amounts of benzaldehyde, an aroma compound typically used in the cosmetic industry. Although the results are preliminary and on a laboratory scale, they highlight a promising and interesting opportunity, also in the context of bioeconomy, for the exploitation of a highly polluting food by-product such as olive pomace.

Key words: olive pomace, yeasts, aroma compounds, bioeconomy