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Fermentation of tomato juice by probiotic yeast

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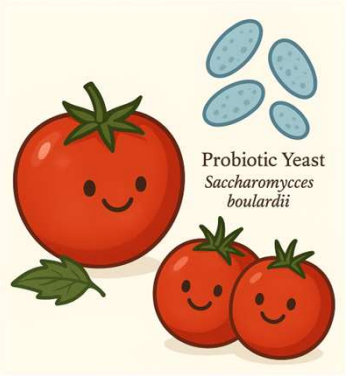


INTRODUCTION & AIM

Recent years have seen a rise in trends in food production with recognised health benefits, including those containing probiotic microorganisms. Tomatoes are rich in bioactive compounds, including lycopene, vitamins C and A, potassium, saponins, and polyphenols, which possess antioxidant, anti-inflammatory, anti-carcinogenic, and cardioprotective properties. In the EU, the annual production of fresh tomatoes was approximately 16 million tonnes.

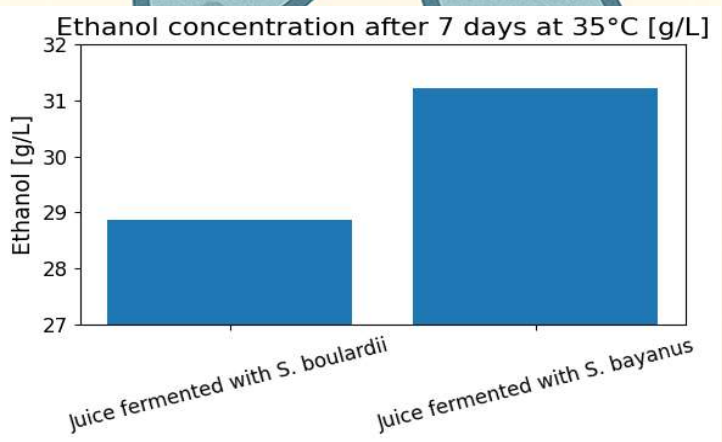
Our study investigated the potential of fermenting tomato juice with the probiotic yeast Saccharomyces cerevisiae var. boulardii.

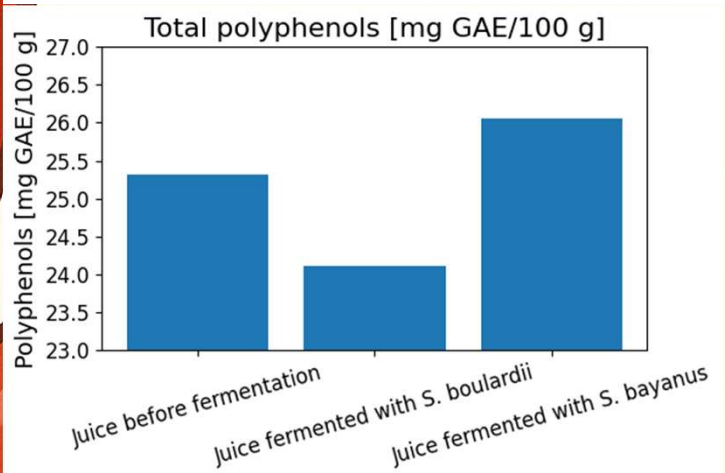
METHODS

We used tomato juice from 'Tłocznia Szymanowice', Poland, as the raw material. Sugar, organic acid and ethanol analyses were performed using HPLC. Polyphenols were determined using the Folin-Ciocalteu method. Saccharomyces cerevisiae var. boulardii CNCM-I-745 culture was obtained from the commercial product Enterol 250 (Biocodex, France). The second dry wine strain – Saccharomyces bayanus BCS103 (Fermentis (Lesaffre), France) – was used to obtain reference results. Due to the low initial sugar content, we added 60 g/L of glucose as a fermentation substrate for the yeast. The fermentation process was carried out at 35°C for 7 days.

RESULTS & DISCUSSION

The fermented tomato juice retained much of the colour but lost its distinctive tomato taste and aroma, becoming dominated by a sour, yeasty, alcoholic sensation.





CONCLUSIONS & PERSPECTIVES

Although fruit and vegetable fermentation is a newly rediscovered trend, as is the appreciation of the role of probiotic foods, in the case of tomato juice, the unfavourable sensory changes in the final product, in our opinion, disqualify the potential market implementation of tomato juices fermented by S. boulardii