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Fruit beers: innovative protocols to produce craft beer by using Sicilian fruits and unconventional yeasts

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This study explores the use of non-conventional yeasts in the production of fruit beers with enhanced aromatic complexity and reduced ethanol content. Yeast strains isolated from natural sources such as manna (Fraxinus angustifolia) and honey demonstrated high osmotolerance and favorable fermentation properties. Experimental fermentations with fruits like loquat and melon assessed the influence of selected yeasts—*Lachancea thermotolerans*, *Hanseniaspora uvarum*, *Candida oleophila*, and *Saccharomyces cerevisiae*—on volatile organic compound (VOC) production and sensory profiles. Results revealed that *L. thermotolerans* and *H. uvarum* significantly improved ester and alcohol balance, contributing to desirable sour and fruity notes. Ongoing industrial-scale trials at Epica S.r.l. brewery (Sinagra, Sicily) confirm the potential of these strains to create multifunctional, low-alcohol, and flavor-rich beverages. The research, supported by Sicilian regional projects and Horizon Project – PRIMA – Mediet4All, highlights the valorization of local biodiversity and resources for innovative and sustainable brewing practices.