vinetur

High Sugar Rewrites Fermentation in Lebanese Cooked Wines

A new study finds extreme sweetness reshapes microbial succession and appears to exclude a key bacterium common in conventional winemaking.

Tuesday, July 7, 2026



A study in the International Journal of Food Microbiology reports the first detailed look at how microbes behave during the spontaneous fermentation of traditional Lebanese cooked wines, a style made from boiled grapes with very high sugar levels.

According to the journal summary provided by the monitoring record, the research examined microbial succession in these wines and found that the extreme sugar environment reshapes the fermentation process. The study identified the dominant microbiota present during production and pointed to a pattern that differs from what is commonly seen in other wine fermentations.

One of the notable findings was the apparent absence of Oenococcus oeni, a bacterium that is often important in winemaking because it is linked to malolactic fermentation. In many wines, that stage can influence flavor development and microbiological stability. In this case, the reported results suggest that the unusually high sugar conditions in Lebanese cooked wines may prevent that organism from establishing itself, or at least make its role far less significant than in more conventional fermentations.

The work matters beyond microbiology because it addresses a traditional beverage style that has received little scientific attention. Cooked wines are part of local food and drink heritage, but their production conditions are unusual. Boiling grapes before fermentation changes the raw material, and the resulting must can present an extreme environment for yeasts and bacteria. By tracking which microorganisms dominate under those conditions, the researchers add evidence on how fermentation pathways shift when sugar levels are especially high.

That could have practical implications for the beverage sector, especially for producers working with sweet, concentrated or heritage wine styles. If high sugar levels consistently reorder microbial communities and limit organisms such as O. oeni, that may affect quality control, flavor evolution and process stability. For wineries relying on spontaneous fermentation rather than selected starter cultures, understanding those microbial dynamics could help explain batch variation and guide decisions on monitoring and cellar management.

The study also adds to broader research on how stress conditions shape fermentation ecosystems. In wine, microbes do not act in isolation. Their succession depends on factors such as sugar concentration, temperature, acidity and oxygen exposure. In a cooked wine matrix, those pressures appear to create a selective environment strong enough to favor some populations while excluding others that are common in standard vinification.

The original article was listed under the title “High-sugar driven microbial dynamics in spontaneous fermentations of Lebanese cooked wines.” Full methodological details were not available in the source material reviewed here because the linked journal page was inaccessible at the time of checking. Still, the summary indicates that the paper offers an initial scientific baseline for understanding a little-studied category of wine whose fermentation appears to be shaped above all by extreme sugar content.