

WHITE LABS QUALITY CONTROL USING qPCR

In the brewing industry, the use of selective microbiological media for quality control has been widely accepted as the preferred method for yeast cultures and in-process samples because it is accessible, inexpensive, and relatively easy-to-use. While commonly used, selective media has its limitations in that it can be somewhat subjective, is limited for low-level detection, incubation time for results can be up to seven days, and can still require molecular confirmation to differentiate organisms and assess risk.

At White Labs, we worked closely with Invisible Sentinel to develop a novel, robust multi-plexed qPCR assay to detect wild yeast and bacterial contaminants in the complex matrix of yeast cultures where recovery of target organisms via enrichment can be innately challenging. This rapid method allows for improved sensitivity and removes “user interpretation” of results.

OUR INNOVATION FOR YEAST QC

- Rapid, sensitive detection in under 48 hours
- Targeted for specific beer spoilage organisms
- Improved sensitivity compared to traditional microbiological methods
- Reliable, easy to interpret results

TECHNICAL INFORMATION

▶ LIMIT OF DETECTION

	Genus	Sensitivity	
		Colony-Forming Units (CFU)	Per Brewers Yeast Cells
BACTERIA	<i>Lactobacillus spp.</i>	< 1	1 x 10 ⁹
	<i>Pediococcus spp.</i>	< 1	5 x 10 ⁸
	<i>Gluconobacter spp.</i>	< 1	1 x 10 ⁹
	<i>Acetobacter spp.</i>	< 1	1 x 10 ⁹
	<i>Bacillus spp.</i>	< 1	3.3 x 10 ⁸
WILD YEAST	<i>Brettanomyces/ Dekkera spp.</i>	< 1	1 x 10 ⁹
	STA1+ <i>Saccharomyces spp.</i>	< 1	2.5 x 10 ⁸
	<i>Candida spp.</i>	< 1	5.7 x 10 ⁸
	<i>Pichia spp.</i>	< 1	7.7 x 10 ⁸
	<i>Wickerhamomyces spp.</i>	< 1	2.2 x 10 ⁸

Typical sensitivity with traditional plating methods:

Lactobacillus/Pediococcus: <1 CFU per 1 x 10⁸

Other general bacteria: <1 CFU per 4 x 10⁷

Wild Yeast species: <1 CFU per 4 x 10⁷

HOW IT WORKS

▶ qPCR QUALITY WORKFLOW

