

## Introduction

Yeasts, moulds, lactic bacteria, acetic acid bacteria and some spore-forming bacteria can occur naturally in the raw materials used in the manufacture of fruit juices and soft drinks. Due to the low pH and low water activity of these products these microorganisms are a particular spoilage risk. Occasionally their presence could also alter the pH sufficiently to allow pathogens to survive and cause illness.

A number of Proficiency Testing samples are provided by AXIO to serve the beverage industry which includes both open and closed schemes. Closed schemes have been devised in collaboration with several multi-national beverage brands indicating a need for testing in this industry.

## Proficiency Testing

Through the use of PT samples and the benefit of having prior knowledge of the microbiological content of a sample we can observe where difficulties lie during routine testing. A common observation is the difficulty in differentiating between yeasts and lactic acid bacteria when both are present in a sample. Differentiating between the two types of microorganisms is useful in determining the source of contamination and a course of corrective/preventative action, should this be observed in a real beverage product.

## PT Results

When a PT sample contains only yeast we can see a significant number of laboratories returning an incorrect result for lactic acid bacteria.

For example:

Sample	Organism (Yeast)	Correct results yeast	Correct result LAB
500257	<i>Candida davenporti</i>	89%	42%
500253	<i>Wickerhamomyces anomalus</i>	98%	46%

## Yeast v Lactic Acid Bacteria

Media commonly used to isolate lactic acid bacteria can also support the growth of yeast. In many cases the microorganisms are morphologically similar and differentiating between them may require confirmatory techniques rather than relying on colony morphology alone.

A series of simple tests can be performed to determine whether it is yeast, lactic acid bacteria or both microorganisms present.

## Simple techniques to differentiate between yeasts and lactic acid bacteria

