



UNIVERSAL BEER AGAR (UBA)

-For in vitro use only-

Catalogue No. PU60 & PU65

Our Universal Beer Agar (UBA) is used for the cultivation and enumeration of microorganisms of significance in the brewing industry.

UBA is based on the work of Kouzulis and Page whom developed a semi-selective medium containing beer. The addition of beer makes the medium selective as the presence of hop constituents and alcohol eliminates many airborne contaminants while allowing beer spoilage organisms to grow. UBA supports the growth of *Lactobacillus*, *Pediococcus*, *Acetobacter*, *Zymomonas* species and wild yeast strains that may be found infecting the pitching yeast, wort or beer. Our differential formulation (DUBA) also contains cycloheximide, which suppresses yeast and fungal growth allowing for better isolation of bacterial contaminants.

Tomato juice solids, yeast extract, dextrose, and sulfate salts provide essential growth factors; peptonized milk provides a source of lactose; phosphate salts buffer the medium while sodium chloride maintains osmotic balance. This combination of ingredients supplemented with beer produces a medium that represents a microbial environment typically found in a brewery.

Formula per Litre of Medium

Peptonized Milk	15.0 g
Yeast Extract	6.1 g
Tomato Juice Solids.....	12.2 g
Dextrose	16.1 g
Dipotassium Phosphate.....	0.31 g
Monopotassium Phosphate.....	0.31 g
Magnesium Sulfate	0.12 g
Sodium Chloride	6.0 mg

Ferrous Sulfate	6.0 mg
Manganese Sulfate	6.0 mg
Agar	12.0 g
Beer.....	250.0 mL

pH 6.3 ± 0.2

Additional Ingredients per Litre

PU65 Differential Universal Beer Agar

Cycloheximide	0.01 g
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Recommended Procedure

1. Allow medium to reach room temperature.
2. Using an inoculum from the sample perform a four quadrant streak to obtain well-isolated colonies. For enumeration purposes, serial dilutions of the sample can be made and spread out onto the plate.
3. Plates can be incubated both aerobically to detect *Acetobacter* species and wild yeasts strains, or anaerobically to detect lactobacilli, pediococci and *Zymomonas* species. Incubate plates in an inverted position at 28-30°C.
4. Examine plates daily for up to 3 days.

Interpretation of Results

Most microorganisms that are contaminants in wort or beer will grow on this medium. The most likely organisms are species of *Lactobacillus*, *Pediococcus*, *Acetobacter* and wild yeast strains.

After the incubation period the different colony types should be noted and for enumeration purposes, colony counts should also be performed.

Quality Control

After checking the medium for correct pH, colour, depth, and sterility, the following organisms are used to determine the growth performance of the completed medium.

Organism	Expected Result	
	UBA	DUBA
<i>Lactobacillus fermentum</i> ATCC 9338	Growth	Growth
<i>Escherichia coli</i> ATCC 25922	Growth	Growth
<i>Saccharomyces cerevisiae</i> ATCC 9763	Growth	Inhibition

2. Murphy BT, Saletan LT. Use of microbiological media in the brewery. Tech Q Master Brew Assoc Am 1970; 7:182-7.
3. MacFaddin JF. Media for the isolation-cultivation-identification-maintenance of medical bacteria, Vol 1. Baltimore: Wilkins and Williams, 1985.

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Revised / Reviewed: October 2014

Storage and Shelf Life

Our UBA and DUBA should be stored away from direct light at 4 to 8°C. The medium side should be uppermost to prevent excessive accumulation of moisture on the surface of the agar. Under these conditions the mediums have a shelf life of 8 weeks from the date of manufacture.

Ordering Information

Cat#	Description	Format
PU60	Universal Beer Agar [Standard 15x100-mm plate]	10/pkg
PU65	Differential Universal Beer Agar [Standard 15x100-mm plate]	10/pkg

References

1. Kozulis JA, Page HE. A new universal beer agar medium for enumeration of wort and beer microorganisms. Proc Am Soc Brew Chem 1968:52-8.