Universal Beer Agar
SKU: 700003472, 700003473, 700003474, 700003475
NCM0171

Intended Use
Universal Beer Agar is used for the cultivation of bacteria and yeasts encountered in the brewing industry in a laboratory setting. Universal Beer Agar is not intended for use in the diagnosis of disease or other conditions in humans.

Description
Universal Beer Agar was developed by Kozulis and Page and used as a basal medium supplemented with beer. The developers compared this formula with other media commonly used in breweries for detecting microbial contamination. The characteristics of Universal Beer Agar are closer to natural environmental conditions found in a typical brewery. Universal Beer Agar supports the growth of more lactic acid bacteria and yields larger colonies in a shorter time than traditional brewer's media. Supplementing this medium with beer has produced a selective environment for organisms that are adapted to existent conditions in the brewery. The presence of hop constituents and alcohol inhibits growth of many airborne microorganisms not adapted to this environment.

Universal Beer Agar supports growth of *Lactobacillus*, *Pediococcus*, *Acetobacter*, and yeasts that are known beer contaminants. Universal Beer Agar is abbreviated as UBA.

Typical Formulation

Tomato Juice Solids	7.0 g/L
Yeast Extract	10.0 g/L
Dextrose	10.0 g/L
Dipotassium Phosphate	0.5 g/L
Monopotassium Phosphate	0.5 g/L
Magnesium Sulfate	0.125 g/L
Sodium Chloride	0.01 g/L
Ferrous Sulfate	0.01 g/L
Manganese Sulfate	0.01 g/L
Peptonized Milk	15.0 g/L
Agar	12.0 g/L

Final pH: 6.3 ± 0.2 at 25°C
Formula is adjusted and/or supplemented as required to meet performance specifications.

Precaution
Refer to SDS

Preparation
1. Suspend 55 g of the medium in 750 mL of purified water.
2. Heat with frequent agitation and boil for one minute to completely dissolve the medium.
3. While medium is hot, add and mix 250 mL of beer without degassing.
4. Autoclave at 121°C for 10 minutes.
5. Cool to 45-50°C.

Quality Control Specifications
Dehydrated Appearance: Powder is homogeneous, free flowing, and light brown.

Prepared Appearance: Prepared medium is trace to slightly hazy and light to dark amber.

Expected Cultural Response: Cultural response on Universal Beer Agar incubated aerobically at 25 - 30°C and examined for growth after 18 - 72 hours.

Microorganism	Approx. Inoculum (CFU)	Expected Results
Escherichia coli ATCC® 25922	10 - 300	Growth
Lactobacillus casei ATCC® 393	10 - 300	Growth
Lactobacillus fermentum ATCC® 9338	10 - 300	Growth
Saccharomyces cerevisiae ATCC® 9763	10 - 300	Growth

The organisms listed are the minimum that should be used for quality control testing.

Test Procedure
Refer to appropriate references for specific procedures.

Results
Refer to appropriate references and procedures for results.

Expiration
Refer to expiration date stamped on the container. The dehydrated medium should be discarded if not free flowing, or if appearance has changed from the original color. Expiry applies to medium in its intact container when stored as directed.

Limitation of the Procedure
Due to varying nutritional requirements, some strains may be encountered that grow poorly or fail to grow on this medium.

Storage
Store dehydrated culture media at 2-30°C away from direct sunlight. Once opened and recapped, place container in a low humidity environment at the same storage temperature. Protect from moisture and light by keeping container tightly closed.

References
1. Kozulis, J. A., and H. E. Page. 1968. A new universal beer agar medium for the enumeration of wort and beer microorganisms. Proc. Am. Soc. Brew. Chem. 19:52-58.
2. Murphy, D. T., and L. T. Saletan. 1970. Use of microbiological media in the brewery. Tech. Q. Master Brew. Assoc. Am. 7:182-187.
3. MacFaddin, J. D. 1985. Media for isolation-cultivation-identification-maintenance medical bacteria, vol. 1. p. 819-820. Williams & Wilkins, Baltimore, MD.

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