Yeast Extract Glucose Chloramphenicol Agar

Intended Use

Yeast Extract Glucose Chloramphenicol Agar is a selective agar recommended by the International Dairy Federation[1,2] for enumerating yeasts and molds in milk and milk products.

Summary and Explanation

The antibiotic method for enumerating yeasts and molds in dairy products has become the method of choice, replacing the traditional acidified method.[2] The use of antibiotics for suppressing bacteria results in better recovery of injured fungal cells, which are sensitive to an acid environment, and in less interference from precipitated food particles during the counting.[3-7]

Yeast Extract Glucose Chloramphenicol Agar is a nutrient medium that inhibits the growth of organisms other than yeasts and molds due to the presence of chloramphenicol. When a sample contains predominantly yeasts and/or injured yeasts, the use of Yeast Extract Glucose Chloramphenicol Agar may offer some advantage.[2] After incubation at 25°C, colonies are counted and yeast colonies are distinguished from molds by colony morphology.

Principles of the Procedure

Yeast extract provides basic nutrients. Glucose is a carbon energy source. Chloramphenicol inhibits bacterial growth. Agar is the solidifying agent.

Formula

Difco™ Yeast Extract Glucose Chloramphenicol Agar

Approximate Formula* Per Liter

Yeast Extract	5.0	g
Glucose	20.0	g
Chloramphenicol	0.1	g
Agar	13.0	g

**Adjusted and/or supplemented as required to meet performance criteria.*

Directions for Preparation from Dehydrated Product

1. Suspend 38.1 g of the powder in 1 L of purified water. Mix thoroughly.
2. Heat with frequent agitation and boil for 1 minute to completely dissolve the powder.
3. Autoclave at 121°C for 15 minutes.
4. Test samples of the finished product for performance using stable, typical control cultures.

2. Add 10 mL from the initial dilution prepared above (#1) to 90 mL of 1/4-strength Ringer's solution. One milliliter (1 mL) of this dilution corresponds to 0.01 g/mL of sample.
3. Prepare further dilutions by adding 10 mL of the 0.01 g/mL dilution above (#2) to 90 mL of diluent.
4. Pipette 1 mL of each dilution into two Petri dishes.
5. Pour 10 mL of sterile molten agar (cooled to 45°C) into each dish. Mix thoroughly.
6. Incubate at 25°C for 4 days.

User Quality Control

Identity Specifications

Difco™ Yeast Extract Glucose Chloramphenicol Agar

Dehydrated Appearance:	Beige, free-flowing, homogeneous.
Solution:	3.81% solution, soluble in purified water upon boiling. Solution is light amber, very slightly to slightly opalescent.
Prepared Appearance:	Light amber, slightly opalescent.
Reaction of 3.81% Solution at 25°C:	pH 6.6 ± 0.2

Cultural Response

Difco™ Yeast Extract Glucose Chloramphenicol Agar

Prepare the medium per label directions. Inoculate by the pour plate technique and incubate at 25 ± 2°C for up to 4 days.

ORGANISM	ATCC™	INOCULUM CFU	RECOVERY
Aspergillus brasiliensis (niger)	16404	30-300	Good
Candida albicans	10231	30-300	Good
Escherichia coli	25922	10^3-2×10^3	Inhibition
Saccharomyces cerevisiae	9763	30-300	Good

Procedure

1. Prepare initial sample dilutions using 10 g or 10 mL of sample in 90 mL of diluent, as listed below:

SAMPLE 10 g or 10 mL	DILUENT 90 mL	PREPARATION
Milk Liquid milk product	1/4-strength Ringer's solution	Mix.
Dried Milk Whey powder Buttermilk powder Lactose	1/4-strength Ringer's solution	Shake at 47°C.
Casein	2% dipotassium phosphate solution	Shake at 47°C.
Cheese	2% sodium citrate solution	Shake at 47°C.
Butter Edible ice	1/4-strength Ringer's solution	Shake at 47°C.
Custard dessert Fermented milk Yogurt	1/4-strength Ringer's solution	Shake.

Expected Results

1. Select plates containing 10-300 colonies and count the colonies. Distinguish yeasts from molds by colony morphology.
2. Express results as yeasts and molds "per gram" or "per milliliter."

References

1. International Dairy Federation. 2004. Standard Method ISO 6611/IDF 94.
2. Frank and Yousef. 2004. *In* Frank and Wehr (ed.), Standard methods for the examination of dairy products, 17th ed. American Public Health Association, Washington, D.C.
3. Beuchat. 1979. J. Food Prot. *42*:427.
4. Cooke and Brazis. 1968. Mycopathol. Mycol. Appl. *35*:281.
5. Koburger. 1970. J. Milk Food Technol. *33*:433.
6. Koburger. 1973. J. Milk Food Technol. *36*:434.
7. Overcase and Weakley. 1969. J. Milk Food Technol. *32*:442.

Availability

Difco™ Yeast Extract Glucose Chloramphenicol Agar

ISO SMD

Cat. No. 219001 Dehydrated – 500 g