

## Wort Agar, Granulated

GM129

Wort Agar, granulated is used for the cultivation and enumeration of yeasts.

### Composition\*\*

Ingredients	Gms / Litre
Malt extract	15.000
Peptic digest of animal tissue	0.780
Maltose	12.750
Dextrin	2.750
Dipotassium phosphate	1.000
Ammonium chloride	1.000
Agar	15.000
Final pH ( at 25°C)	4.8±0.2

\*\*Formula adjusted, standardized to suit performance parameters

### Directions

Suspend 48.28 grams in 1000 ml distilled water containing 2.35 grams of glycerol. Heat to boiling to dissolve the medium completely. Sterilize by autoclaving at 15 lbs pressure (121°C) for 15 minutes. Cool to 45-50°C. Mix well and pour into sterile Petri plates.

### Principle And Interpretation

Wort Agar is used for the cultivation, isolation and enumeration of yeast and moulds. According to Rapp (1), addition of certain dyes to Wort Agar allows differentiation between yeast and bacterial colonies. It is particularly well adapted for counting osmophilic yeast in butter, sugar and syrups, in lemonades and more generally in sweet or soft drinks. Wort Agar is a medium equivalent to the medium described by Parfitt (2) and equally suitable for the cultivation and enumeration of yeasts. Parfitt investigated the relative merits of Wort Agar and other media for the count of yeasts and moulds in butter, and recommended the use of dehydrated whey, malt or wort for the purpose. Scarr (3) employed a modified Wort Agar (Osmophilic Agar) for the examination of sugar products for presence of osmophilic yeasts. For more selective utilization, it is possible to adjust the pH to 4.5 or 3.5 by adding 10 ml/l of a 10% solution of lactic acid or tartaric acid before sterilization.

Yeasts grow well in culture media containing dextrose or maltose in an acidic environment. In this medium, peptic digest of animal tissue and malt extract provide nitrogenous and other nutrients for the growth of yeasts. Dextrin and maltose are the fermentable carbohydrates. The agar medium should not be re-liquified as it causes alteration with hydrolysis of agar at low pH and results in failure of agar to gel when cooled (4).

For the microbiological examination of butter, make suitable dilutions in quarter strength Ringer solution. Transfer 1 ml of each dilution to a separate Petri dish; add 15 ml of melted Wort Agar, cooled to 45-48°C, mix by rotary movements in a horizontal plane. Incubate the plates and subsequently count the colonies.

### Quality Control

#### Appearance

Light yellow to brownish yellow coloured granular medium

#### Gelling

Firm, comparable with 1.5% Agar gel.

#### Colour and Clarity of prepared medium

Yellow coloured Opalescent gel forms with flocculant precipitate in Petri plates.

#### Reaction

Reaction of 4.83% w/v aqueous solution at 25°C. pH : 4.8±0.2

#### pH

4.60-5.00

#### Cultural Response

Cultural characteristics observed with added glycerol after an incubation at 25-30°C for 40-48 hours.

Organism	Inoculum (CFU)	Growth	Recovery
* <i>Aspergillus brasiliensis</i> ATCC 16404	50-100	luxuriant	-
<i>Candida albicans</i> ATCC 10231	50-100	luxuriant	>=70%
<i>Saccharomyces cerevisiae</i> ATCC 9763	50-100	luxuriant	>=70%
<i>Saccharomyces uvarum</i> ATCC 28098	50-100	luxuriant	>=70%

Key: \*- Formerly known as *Aspergillus niger*

### Storage and Shelf Life

Store below 30°C in tightly closed container and the prepared medium at 2 - 8°C. Use before expiry date on the label.

### Reference

1. Rapp M., 1974, Indikatorzusätze zur Keimdifferenzierung auf Wurze-und Malzextrakt-Agar, Milchwiss, 29; 341-344.
2. Parfitt E. H., 1933, J. Dairy Sci., 19: 141.
3. Scarr M., 1959, J. Sci. Food. Agric., 10 (12), 678-681.
4. MacFaddin J. F., 1985, Media for Isolation-Cultivation- Identification-Maintenance of Medical Bacteria, Vol. 1, Williams and Wilkins, Baltimore.

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