Yeast Lactose Agar

M720

Yeast Lactose Agar is used for cultivation of soil microorganisms such as *Rhizobium* species.

Composition**

Ingredients	Gms / Litre
Yeast extract	1.000
Lactose	10.000
Dipotassium hydrogen phosphate	0.500
Magnesium sulphate	0.200
Sodium chloride	0.100
Agar	15.000
Final pH (at 25°C)	6.8±0.2

**Formula adjusted, standardized to suit performance parameters

Directions

Suspend 26.8 grams in 1000 ml distilled water. Heat to boiling to dissolve the medium completely. Dispense as desired. Sterilize by steaming for 30 minutes on two consecutive days. Confirm sterility by leaving it at room temperature (30 ± 2°C) for 3-4 days. Alternatively the medium can be sterilized by autoclaving at 15 lbs pressure (121°C) for 15 minutes.

Principle And Interpretation

Symbiotic nitrogen fixation is accomplished by bacteria of the genus *Rhizobium* in association with legumes (plants that bear seeds in pods). These bacteria infect the root system of the legumes and further invade the host plant cells via an infection thread. Some of the cells of the plant are thus infected causing cell enlargement and an increased rate of cell division, leading to the formation of abnormal growth (nodules) on the root system. The legume, the bacteria and the nodule together constitute the nitrogen fixing system. The bacteria make nitrogen available to the plant, and in turn the bacteria derive nutrients from the tissues of the plant (1). Yeast Lactose Agar (2) is used for cultivation of soil microorganisms such as *Rhizobium* species (3).

Yeast extract serves as a good source of readily available amino acids, including vitamin B complex and accessory growth factors. It also poises the oxidation-reduction potential of medium in the range favourable for Rhizobia and serves as hydrogen donor in respiratory process (4). Lactose is the fermentable carbohydrate source. Magnesium provides cations essential for the growth of Rhizobia.

Quality Control

Appearance
Cream to yellow homogeneous free flowing powder

Gelling
Firm, comparable with 1.5% Agar gel.

Colour and Clarity of prepared medium
Light yellow coloured opalescent gel forms in Petri plates.

Reaction
Reaction of 2.68% w/v aqueous solution at 25°C. pH : 6.8±0.2

pH
6.60-7.00

Cultural Response
M720: Cultural characteristics observed after an incubation at 25-30°C for upto 2-5 days.

Organism	Growth
Rhizobium japonicum ATCC 10324	luxuriant
Rhizobium meliloti ATCC 9930	luxuriant

Storage and Shelf Life

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

Reference

1. Pelczar M. J. Jr., Reid R. D., Chan E.C. S., 1977, Microbiology, Tata McGraw-Hill Publishing Company Ltd, New Delhi.
2. Bernaerts M. J. and De Ley J., 1963, Nature, Lond, 197, 406-407.
3. Subba Rao N. S., 1977, Soil Microorganisms and Plant Growth. Oxford and IBH Publishing Co.4. Allen E. K. and Allen O. N., 1950, Bact. Revs., 14:273.

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