Formula * in g/L

Peptone	5.000
Dextrose	10.000
Potassium dihydrogen phosphate	1.000
Magnesium sulphate heptahydrate	0.500
Dichloran	0.002
Chloramphenicol	0.100
Agar	15.000

Final pH 5.6 ±0.2 at 25 °C

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

Directions

Suspend 31,7 g of powder in 1 L of distilled water and bring to the boil. Add 220 g (~180 mL) of glycerol and homogenize. Distribute it into suitable containers and sterilize in the autoclave at 121ºC for 15 minutes.

Description

Among the culture media for xerophilic fungi, those that have played a more successful role are the ones which include any agent that restrains the continuous growth of zygomycete fungal colonies. Dichloran (dichlorebenzalkonium chloride) and Rose Bengal are two of those inhibitors.

DG18 Agar formulation used is that proposed by Hocking & Pitt in 1980, and it includes Dichloran which limits the size of fungal colonies more efficiently than Rose Bengal. Chloramphenicol inhibits bacterial growth and its thermostability allows it to be included in the medium before sterilization.

The inclusion of 18% (w/w) of Glycerine gives the medium a water activity (a_w) of 0,955 without causing any of the problems that generally occur when this water activity is provided by sodium chloride or sugar.

The addition of Triton X-301® (Tapia de Daza and Beuchat, 1992) at a concentration of 0.01% (w/w) enables easier enumeration of xerophiles when *Eurotium spp.* are present (Beuchat and Hwang).

Technique

Mass inoculation is recommended by spread plating using an inoculation loop, a swab or by spreading the sample with a Drigalsky loop. Never use an inoculum volume greater than 0.1 ml.

According to the standardized technique, plates must be incubated à 22-25 °C, with partial readings after 3 and 5 days, and definitive readings after 7-8 days. Results are expressed in xerophiles - CFU/g or ml of food samples or CFU/m³ of air.

Plates of DG 18 Agar in bags will keep for up to one week à 5 ±3 °C in the dark. Due to its extreme water activity (aw= 0.955), the plates must be rejected if any kind of dehydration is suspected.

Quality control

Incubation temperature: 25 ± 1 °C **Incubation time:** 48 h - 5 days

Inoculum: Practical range 100 ±20 CFU. min. 50 CFU (productivity)/ 10^4-10^6 CFU (selectivity), according to ISO 11133:2014/Amd 1:2018.

Microorganism	Growth	Remarks
Bacillus subtilis ATCC® 6633	Inhibited	-
Escherichia coli ATCC® 25922	Inhibited	-
Wallemia sebi ATCC® 42694	Productivity > 0.50	-
Saccharomyces cerevisiae ATCC® 9763	Productivity > 0.50	-
Candida albicans ATCC® 10231	Productivity > 0.50	-
Aspergillus niger ATCC® 16404	Productivity > 0.50	-

References

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· TAPIA de DAZA, M.S. and L.R. BEUCHAT. (1992) Suitability of modified dichloran glycerol (DGH!8) agar for enumerating unstressed and stressed xerophilic molds. Food Microbiol. 9:319-333.

Storage

For laboratory use only. Keep tightly closed, away from bright light, in a cool dry place (+4 ºC to 30 ºC).