TM 1032 - MUG VIOLET RED BILE AGAR

INTENDED USE

For detection and enumeration of coliform organisms by a fluorogenic method.

PRODUCT SUMMARY AND EXPLANATION

Escherichia coli is used as an indicator organism to determine unsanitary conditions. A number of selective media are recommended for use in enrichment, presumptive identification and confirmatory procedures for demonstrating the presence of coliforms. These procedures require longer incubation period. Violet Red Bile Agar is recommended by APHA for the detection and enumeration of coliforms in foods and dairy products. Addition of MUG to this medium permits the rapid detection of *E. coli*, when the medium is observed for fluorescence under UV light, requiring no further confirmation. *E. coli* possesses the enzyme beta-glucuronidase which specifically cleaves MUG to form a fluorogenic compound 4-methylumbelliferone, which results in visible blue-green fluorescence. MUG Violet Red Bile Agar is therefore recommended for the specific detection of *E. coli*.

COMPOSITION

Ingredients	Gms / Ltr
Peptone	7.000
Yeast extract	3.000
Bile salts mixture	1.500
Lactose	10.000
Sodium chloride	5.000
Neutral red	0.030
Crystal violet	0.002
4-Methylumbelliferyl ß-D-glucuronide (MUG)	0.100
Agar	15.000

PRINCIPLE

Peptone, yeast extract and lactose provide essential nutrients. Crystal violet and bile salts inhibit some gram-positive and gram-negative bacteria. Neutral red acts as a pH indicator and helps to exhibit red colonies in the presence of acid from lactose fermentation. Acidic pH decreases the intensity of fluorescence, thus making it difficult to identify fluorescent *E. coli*. The plates after primary identification i.e. red colonies surrounded by bile precipitate were exposed to ammonia fumes to increase fluorescence as suggested by Freir and Hartman The substrate, MUG is hydrolysed by an enzyme beta-glucuronidase, which is present in most of *E. coli* and a few strains of *Salmonella, Shigella* and *Yersinia* to yield a fluorescent end product, 4-methylumbelliferone.

INSTRUCTION FOR USE

- Dissolve 41.63 grams in 1000 ml purified/distilled water.
- Heat to boiling to dissolve the medium completely.
- Cool the medium to 45-50°C.
- Mix well and pour into sterile Petri plates. Do not autoclave.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Light yellow to light pink homogeneous free flowing powder.
Appearance of prepared medium : Reddish purple coloured clear to slightly opalescent gel forms in Petri plates.
pH (at 25°C) : 7.4±0.2

INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Recovery	Colour of colony	Fluorescence under UV by addition of NaOH	Incubation Temperature	Incubation Period
Enterobacter aerogenes	13048	50-100	Luxuriant	>=70 %	Pinkish red -red	Negative	35-37°C	20-24 Hours
Escherichia coli	25922	50-100	Luxuriant	>=70 %	Pinkish red -red w/bile ppt.	Positive	35-37°C	20-24 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 2-8°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided on the container. After the desired amount of medium has been taken out replace the cap tightly to protect from hydration.
Product Deterioration: Do not use if they show evidence of microbial contamination, discoloration, drying or any other signs of deterioration.

DISPOSAL

After use, prepared plates, specimen/sample containers and other contaminated materials must be sterilized before discarding.

REFERENCES

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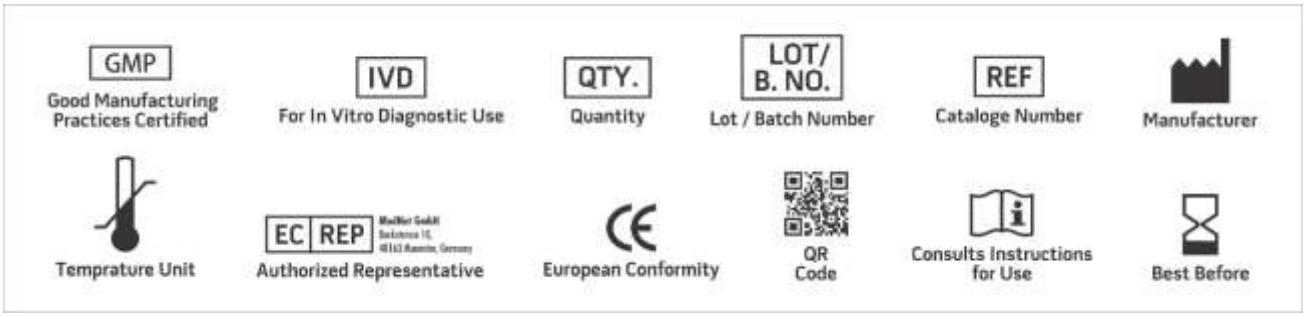
9. Salfinger Y., and Tortorello M.L., 2015, Compendium of Methods for the Microbiological Examination of Foods, 5th Ed., American Public Health Association, Washington, D.C.



NOTE: Please consult the Material Safety Data Sheet for information regarding hazards and safe handling Practices.

***For Lab Use Only**

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