TM 006 – ACETATE DIFFERENTIAL AGAR

INTENDED USE

For the differentiation of *Shigella* species from *E.coli* and non fermantative gram-negative bacilli.

PRODUCT SUMMARY AND EXPLANATION

Acetate Differential Agar was formulated by Trabulsi and Ewing. Tatum, Ewing and Weaver modified the medium by replacing sodium citrate by sodium acetate, which enables the differentiation of *Shigella* species from *Escherichia coli*. Organic acids have been used widely as an aid in the differentiation of *Enterobacteriaceae*, usually in formulae that contained organic nitrogen sources. Most bacteria, however, can use citrate and acetate in the presence of organic nitrogen.

The differentiation of groups is based on the ability or failure of the test culture to utilize acetate in a medium devoid of trace organic nitrogen. This medium contains sodium acetate as the sole source of carbon. Trabulsi and Ewing demonstrated that *Shigella* and *Proteus* species are unable to utilize acetate and therefore fails to grow. Majority of *Escherichia coli* and closely related organisms grow well within 24-48 hours but some strains grow very slowly and a few strains are unable to utilize acetate as a sole carbon source. Acetate utilization is indicated by formation of blue colour, which is due to the utilization of sodium acetate and subsequent formation of an alkaline reaction detected by the presence of bromothymol blue indicator.

COMPOSITION

Ingredients	Gms / Ltr
Sodium acetate	2.000
Magnesium sulphate	0.100
Sodium chloride	5.000
Monoammonium phosphate	1.000
Dipotassium hydrogen phosphate	1.000
Bromothymol blue	0.080
Agar	20.000

PRINCIPLE

Sodium acetate is utilized as a sole source of carbon by some serobiotypes of *S.flexneri* such as *Shigella flexneri*. Magnesium sulphate is essential ion. Sodium chloride maintains osmotic equilibrium and phosphates act as buffers.

INSTRUCTION FOR USE

- Dissolve 29.18 grams in 1000 ml purified/distilled water.
- Heat to boiling to dissolve the medium completely.
- Distribute in tubes in sufficient amounts to give butt and slant.
- Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes. Allow the tubes to cool in a slanted position.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to light green homogeneous free flowing powder.

Appearance of prepared medium : Emerald green coloured clear to slightly opalescent gel forms in tubes as slants.

pH (at 25°C) : 6.7±0.2

INTERPRETATION

Cultural characteristics observed after incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Incubation Temperature	Incubation Period
Citrobacter freundii	8090	50-100	Good-luxuriant	25-30°C	1-7 Days
Enterobacter cloacae	23355	50-100	Good-luxuriant	25-30°C	1-7 Days
Escherichia coli	25922	50-100	Good-luxuriant	25-30°C	1-7 Days
Klebsiella pneumoniae	13883	50-100	Good-luxuriant	25-30°C	1-7 Days
Proteus vulgaris	13315	>=10^4	Inhibited	25-30°C	1-7 Days
Salmonella Arizonae	13314	50-100	Good-luxuriant	25-30°C	1-7 Days
Salmonella Typhi	19430	50-100	Poor	25-30°C	1-7 Days
Shigella sonnei	25931	50-100	None-poor	25-30°C	1-7 Days

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°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.

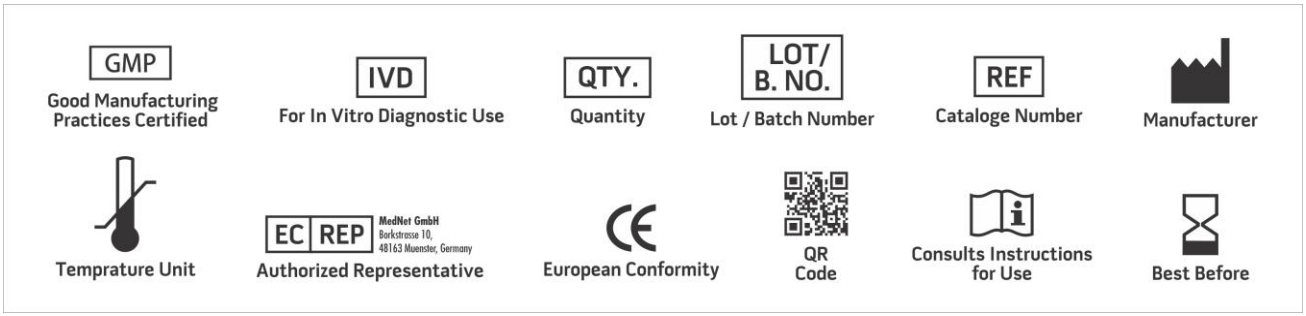
DISPOSAL

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

REFERENCES

1. Talukder K. A, Islam M. A., Dutta D.K., Hasan F., Sada A., Nair G. B . and Sack D. A., 2002, J. Clin. Microbiol., 40:2490.

2. Tatum H. W., Ewing W. H., and Weaver R. E., 1974, Manual of Clinical Microbiology,2nd Ed., American Society for Microbiology, Washington D.C. Pg.-270
3. Ewing, 1986, Edwards and Ewings Identification of Enterobacteriaceae, 4th Ed. Elsevier Science Publishing Co., Inc., New York.



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

***For Lab Use Only**

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