TM 2312 - SIM MOTILITY MEDIUM, MODIFIED

INTENDED USE

For determination of hydrogen sulphide production, indole formation and motility of enteric bacilli in accordance with FDA BAM.

PRODUCT SUMMARY AND EXPLANATION

SIM Medium is recommended by FDA BAM, 1998 to differentiate enteric bacilli particularly *Salmonella* and *Shigella* on the basis of sulphide production, indole formation and motility Jordan and Victorson reported that *Salmonella* Paratyphi A and Paratyphi B can be distinguished on the basis of H2S production using lead acetate. Sulkin and Willett used Triple Sugar Iron Agar with 1% agar for motility along with H2S production and carbohydrate fermentation. Sosa described a peptone medium with low agar for motility and indole determination.

Inoculate fresh culture with a single stab using straight needle through the center of the medium. Following incubation, observe for motility (diffuse growth outward from the stabline or turbidity throughout the medium) and for H2S production (blackening of the medium). To detect indole production, add three or four drops of Kovacs reagent and observe for development of red color (positive reaction). Determine motility and H2S production prior to determination of indole production.

COMPOSITION

Ingredients	Gms / Ltr
Pancreatic digest of casein	20.000
Peptic digest of animal tissue	6.100
Ferrous ammonium sulfate	0.200
Sodium thiosulfate	0.200
Agar	3.500

PRINCIPLE

Motility, indole and sulphide production tests are used to differentiate *Enterobacteriaceae* members. SIM Medium combines these three differential characteristics in a single medium. Peptonized iron and sodium thiosulphate are the indicators of H2S production. This H2S reacts with peptonized iron to form black precipitate of ferrous sulphide. *Salmonella* are H2S positive and *Shigella* are H2S negative. Motile organisms intensify the H2S reaction. Motile organisms grow away from line of inoculation showing diffused growth while non-motile organisms grow along the stabline. Motility detection is possible due to the semisolid nature of the medium. *Salmonella* is motile while *Shigella* are non-motile. Tryptophan, from peptic digest of animal tissue, is degraded by specific bacteria to produce indole. The indole is detected by the addition of chemical reagents following the incubation period.

INSTRUCTION FOR USE

- Dissolve 30.0 grams in 1000 ml distilled water.
- Heat to boiling to dissolve the medium completely.
- Dispense in tubes. Sterilize by autoclaving at 15 psi pressure (121°C) for 15 minutes.
- Allow the tubes to cool in an upright position.

QUALITY CONTROL SPECIFICATIONS

Appearance of Powder : Cream to beige homogeneous free flowing powder.
Appearance of prepared medium : Medium amber coloured slightly opalescent gel forms in tubes as butts.
pH (at 25°C) : 7.3±0.2

INTERPRETATION

Cultural characteristics observed after an incubation.

Microorganism	ATCC	Inoculum (CFU/ml)	Growth	Motility	Indole production (on addition of Kovac's)	H_2S	Incubation Temperature	Incubation Period
Escherichia coli	25922	50-100	Luxuriant	Positive, growth away from stabline causing turbidity	Positive reaction, red ring at the interface of the medium	Negative reaction	35-37°C	18-24 Hours
Salmonella Typhimurium	14028	50-100	Luxuriant	Positive, growth away from stabline causing turbidity	Negative reaction	Positive reaction, blackening of medium	35-37°C	18-24 Hours
Shigella flexneri	12022	50-100	Luxuriant	Negative, growth along the stabline, surrounding medium remains clear	Negative reaction	Negative reaction	35-37°C	18-24 Hours
Salmonella Paratyphi A	9150	50-100	Luxuriant	Positive, growth away from stabline causing turbidity	Negative reaction	Negative reaction	35-37°C	18-24 Hours
Salmonella Paratyphi B	8739	50-100	Luxuriant	Positive, growth away from stabline causing turbidity	Negative reaction	Positive reaction, blackening of medium	35-37°C	18-24 Hours
Klebsiella pneumoniae	13883	50-100	Luxuriant	Negative, growth along the stabline, surrounding medium remains clear	Negative reaction	Negative reaction	35-37°C	18-24 Hours

PACKAGING:

In pack size of 500 gm bottles.

STORAGE

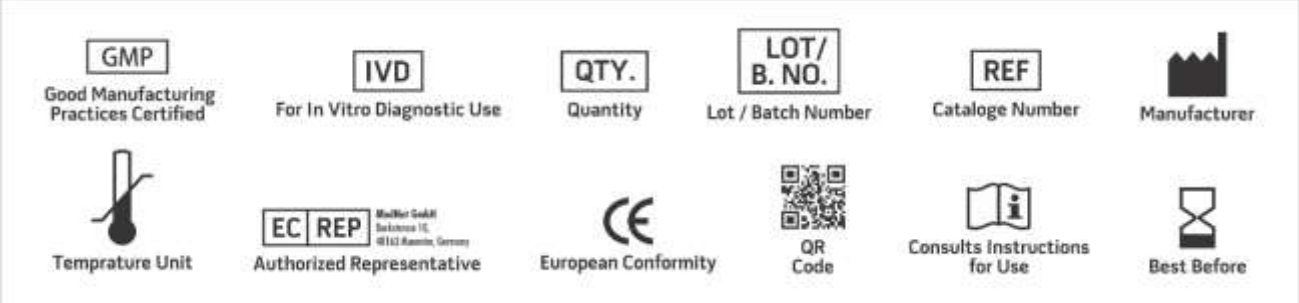
Dehydrated powder, hygroscopic in nature, store in a dry place, in tightly-sealed containers between 25-30°C and protect from direct sunlight. Under optimal conditions, the medium has a shelf life of 4 years. When the container is opened for the first time, note the time and date on the label space provided 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. FDA, U.S. 1998. Bacteriological Analytical Manual. 8 ed. Gaithersburg, MD: AOAC International.
2. MacFaddin, J. F. 1985. Media for Isolation-Cultivation-Identification-Maintenance of Medical Bacteria vol. 1. Baltimore: Williams and Wilkins.
3. Jordan, E. O. and Victorson, R 1917. J. Inf. Dis, 21.
4. Sulkin, S. E. and Willett, J. C 1940. J. Lab. Clin. Med., 25
5. Sosa, L 1943. Rev. Inst. Bacteriol, 11



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

***For Lab Use Only**

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