CARBOHYDRATE FERMENTATION TABLETS

PRINCIPLE/DISCUSSION:
Rapid Fermentation Tablets are used in identifying fermentative bacteria through their ability to ferment carbohydrates and related compounds. Fermentation of the related carbohydrate creates acid changing the phenol red indicator to yellow. The long shelf life offered in this system makes it easy to do supplemental testing without the high costs normally associated with rare sugars in tube form. Key fermentation tablets are developed for use with fermentative *Enterobacteriaceae* and are not recommended for other organisms.

ACTIVE INGREDIENTS:
Each tablet contains the respective carbohydrate in a final concentration of 20 mg per tablet and other inert chemicals: Dipotassium phosphate, Phenol Red, Hyamine, and Sodium Chloride. None of the ingredients are known to be hazardous.

STORAGE:

Consult individual package labels for storage instructions.

MATERIALS REQUIRED:
Each carbohydrate is sold separately in bottles of 50 tablets. The complete list of available carbohydrates is given in the QUALITY CONTROL section. Rapid Fermentation tests require fresh 24 hour growth on culture media. Consult the Manual of Clinical Microbiology for recommended media for the specimen. The tests may be done from any media if sufficient colonies are available. The following items are required but not provided:

- Small test tubes (e.g. 12 X 75),
- Inoculating loop,
- Sterile pipette,
- Purified water, pH 6.8-7.5.

PROCEDURE:
For the correct carbohydrate selection, consult the Manual of Clinical Microbiology. Follow instructions for single or multiple tests as shown below.

SINGLE TEST METHOD:
Harvest enough colonies of the organism to create a heavy bacterial suspension in 1.5- 2.0 ml of water and add the tablet. Add oil overlay for anaerobic fermentation reaction results. For aerobic fermentation, do not add the oil overlay. Incubate at 35-37°C.

MULTIPLE TEST METHOD:
Label and set up the desired number of empty tubes in a rack. Add 1.5 to 2.0 ml of distilled water (neutral pH) and the appropriate tablet to each tube. Prepare a heavy suspension into 1.0-2.0 ml. of distilled water from an agar slant or plate containing a pure culture of the organism being tested. This is enough to inoculate 9-12 tubes and still yield rapid results. The suspension may be used for up to 4 days if stored at 4°C. Inoculate the prepared tubes by adding 2-3 drops of this suspension with a sterile pipette. Add oil overlay for anaerobic fermentation reaction results. For aerobic fermentation, do not add the oil overlay. Incubate at 35- 37°C.

INTERPRETATION OF RESULTS:
The tube should be observed for color change from red to yellow, indicating acid production. Fermentation may be apparent in 30 minutes and usually is complete within 6 hours. Hold tubes for 48 hours before discarding negative tests. Gas production is shown by the appearance of bubbles near the bottom of the tube.

QUALITY CONTROL:
KEY Fermentation tablets should be tested prior to use with organisms which produce known reactions. Suggestions are listed below. The Manual of Clinical Microbiology should be consulted for detailed reactions and identification charts. Finished tests should be discarded in a manner conforming with accepted laboratory procedures for biohazardous materials. KEY Fermentation Tablets are for INVITRO DIAGNOSTIC USE ONLY.
Note: This insert for regular tablets only. WeeTab fermentation tablet insert is separate and called FERMWT

CARBOHYDRATE FERMENTATION SUGGESTED QC TESTS		
TEST	POSITIVE	NEGATIVE
K020 Adonitol	Enterobacter aerogenes 13048	Escherichia coli 25922
K070 Arabinose	Enterobacter aerogenes 13048	Proteus vulgaris 13315
K120 Cellobiose	Enterobacter aerogenes 13048	Proteus mirabilis 12453
K130 Dextrin	Enterobacter aerogenes 13048	Proteus mirabilis 12453
K150 Dextrose	Escherichia coli 25922	Bordetella bronchiseptica 4617
K180 Dulcitol	Sal subgroup 5 strains*	Salmonella typhi 14028
K230 Fructose	Escherichia coli 25922	Bordetella bronchiseptica 4617
K240 Galactose	Klebsiella pneumoniae 33495	Bordetella bronchiseptica 4617
K330 Inositol	Klebsiella pneumoniae 33495	Escherichia coli 25922
K350 Inulin	Bacillus subtilis	Escherichia coli 25922
K360 Lactose	Escherichia coli 25922	Proteus vulgaris 13315
K410 Maltose	Klebsiella pneumoniae 33495	Proteus mirabilis 12453
K430 Mannitol	Escherichia coli 25922	Proteus mirabilis 12453
K435 Mannose	Klebsiella pneumoniae 33495	Proteus vulgaris 13315
K440 Melibiose	Klebsiella pneumoniae 33495	Bordetella bronchiseptica 4617
K540 Raffinose	Enterobacter aerogenes 13048	Proteus vulgaris 13315
K550 Rhamnose	Citrobacter diversus 2425	Proteus vulgaris 13315
K570 Salicin	Klebsiella pneumoniae 33495	Proteus mirabilis 12453
K600 Sorbitol	Klebsiella pneumoniae 33495	Bordetella bronchiseptica 4617
K610 Sucrose	Klebsiella pneumoniae 33495	Bordetella bronchiseptica 4617
K640 Trehalose	Proteus mirabilis 12453	Bordetella bronchiseptica 4617
K680 Xylose	Proteus mirabilis 12453	Bordetella bronchiseptica 4617

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