



MGP BROTH

-For in vitro use only-

Catalogue No. TM61

Our MGP Broth is used to differentiate *Enterococcus faecalis* and *Enterococcus faecium* from other enterococci.

The majority of clinical isolates of enterococci are either *E. faecalis* (80-90%) or *E. faecium* (5-10%). However, some cases of infections involving *E. raffinosus*, *E. casseliflavus*, and *E. gallinarum* have been reported. Furthermore, the emergence and dissemination of multiple antimicrobial resistance traits among enterococcal strains and the increasing prevalence of enterococci as nosocomial pathogen makes their surveillance and identification crucial.

In the health care setting, infection control programs are designed to minimize the transmission of epidemiologically-significant enterococci, such as *E. faecalis* and *E. faecium*, that possess an acquired high-level resistance to vancomycin. Therefore, the isolation of *E. raffinosus*, *E. casseliflavus*, and *E. gallinarum* becomes problematic since these organisms possess an intrinsic low-level resistance to vancomycin that allow them to grow on VRE screening mediums.

MGP Broth is a simple test used to differentiate medically important enterococci such as *E. faecalis* or *E. faecium* from the rarely isolated ones such as *E. raffinosus*, *E. casseliflavus*, and *E. gallinarum*. The broth contains the carbohydrate methyl- α -D-glucopyranoside (MGP) that can be utilized by some bacteria to produce acid as an end product. The broth also contains the pH indicator phenol red, which changes from red to yellow when sufficient acid is produced. *E. faecalis* and *E. faecium* cannot utilize MGP therefore no color change will occur after the incubation period. *E. raffinosus*, *E. casseliflavus*, and *E. gallinarum* can all produce acid from MGP.

Formula per Litre of Medium

Pancreatic Digest of Casein	10.0 g
Beef Extract	1.0 g
Sodium Chloride.....	5.0 g
Phenol Red.....	0.018 g
Methyl- α -D-glucopyranoside.....	10.0 g

pH 7.4 \pm 0.2

Recommended Procedure

1. Allow medium to adjust to room temperature prior to inoculation.
2. Inoculate the tube using an overnight, pure culture of the isolate obtained from a non-selective blood plate. Select one or two well-isolated colonies and inoculate them into the MGP Broth.
3. Incubate tubes aerobically at 35°C.
4. Check tubes after 24 and 48 hours.

Interpretation of Results

A positive reaction is growth in the medium accompanied by a yellow color change. *E. raffinosus*, *E. casseliflavus*, and *E. gallinarum* are MGP-positive.

A negative reaction is growth in the medium with no color change; the broth remains reddish-orange. *E. faecalis* and *E. faecium* are MGP-negative.

- *Other MGP-negative enterococci include E. malodoratus, E. durans, E. hirae, E. cecorum, E. columbae. These species have rarely or never been isolated from human sources*

Quality Control

After checking the medium for correct pH, color, depth, and sterility, the following organisms are used to determine the performance of the completed medium.

<u>Organism</u>	<u>Expected results</u>
<i>Enterococcus gallinarum</i> ATCC 49573	+ve Yellow
<i>Enterococcus faecalis</i> ATCC 29212	-ve Red (No change)

Storage and Shelf Life

Our MGP Broth should be stored in an upright position at 4 to 8°C and protected from light. Under these conditions the medium has a shelf life of 16 weeks from the date of manufacture.

References

1. Devriese LA, Pot B, Kersters K, Lauwers S, Haesebrouck F. Acidification of methyl- α -D-glucopyranoside: a useful test to differentiate *Enterococcus casseliflavus* and *Enterococcus gallinarum* from *Enterococcus faecium* species group and from *Enterococcus faecalis*. J Clin Micro 1996; 34:2607-8.
2. Carvalho MGS, Teixeira LM, Facklam RR. Use of tests for acidification of methyl- α -D-glucopyranoside and susceptibility to efrotomycin for differentiation of strains of *Enterococcus* and some related genera. J Clin Micro 36:1584-7.
3. Murray PR, Baron EJ, Pfaller MA, Tenover FC, Tenover RH, Eds. Manual of clinical microbiology. 7th ed. Washington, DC: ASM, 1999.