MacConkey II Agar

I INTRODUCTION

MacConkey II Agar is a selective and differential medium for the detection of coliform organisms and enteric pathogens.

PRODUCT INFORMATION

II INTENDED USE

MacConkey II Agar is a selective and differential medium for the detection of coliform organisms and enteric pathogens.

III SUMMARY AND EXPLANATION

At the present time, many culture media are available to the laboratorian for the isolation, cultivation and identification of enteric bacteria. One of the earliest of these was developed by MacConkey and first described as a brief published note. The landmark paper on MacConkey Agar was published in 1905 and contained detailed descriptions of the medium and the bacterial growth patterns obtained. This formulation was devised in the knowledge that bile salts are precipitated by acids and certain enteric microorganisms ferment lactose whereas others do not possess this ability.

Since the publication of the early papers, the MacConkey Agar formula has been modified many times. A compilation of culture media published in 1930 lists ten modifications which were published up to that time. More recent modifications include use of additives (e.g., kanamycin) and the deletion of certain ingredients (e.g., crystal violet, and neutral red).

MacConkey Agar is recommended for use with clinical specimens likely to contain mixed microbial flora, such as urine, respiratory and wound, because it allows a preliminary grouping of enteric and other gram-negative bacteria.

IV PROCEDURE

Instructions
The agar surface should be smooth and moist, but without excessive moisture.

Streak the specimen as soon as possible after it is received in the laboratory.

The streak plate is used primarily to isolate pure cultures from specimens containing mixed flora. A nonselective medium should also be streaked to increase the chance of recovery when the population of gram-negative organisms is low and to provide an indication of other organisms present in the specimen.

Alternatively, if material is being cultured directly from a swab, roll the swab over a small area of the surface at the edge; then streak from this inoculated area. Incubate plates, protected from light, at 35 ± 2°C (do not use CO_2-enriched atmosphere with MacConkey II Agar) or other appropriate temperature for 18 to 24 h.

Visual Results on This Medium Should Be As Follows

After incubation most plates will show an area of confluent growth. Because the streaking procedure is, in effect, a "dilution" technique, diminishing numbers of microorganisms are deposited on the streaked areas. Consequently, one or more of these areas should exhibit isolated colonies of the organisms contained in the specimen. Better isolation is obtained due to the inhibitory action of the medium.

Typical colonial morphology on MacConkey II Agar is as follows:

E. coli . . . . . Pink to rose-red (may be surrounded by a zone of precipitated bile)

Enterobacter/Klebsiella . . . . . Mucoid, pink

Proteus . . . . . Colorless, swarming in areas of isolated colonies is inhibited

Salmonella . . . . . Colorless

Shigella . . . . . Colorless

Pseudomonas . . . . . Irregular, colorless to pink

Gram-positive bacteria . . . . . No growth to slight growth