

General bacterial media [\[edit \]](#)

- **Bile esculin agar (BEA)**

BEA is used for the isolation of *Enterococcus*, as well as *Group D Streptococcus species*

- **CLED agar**

Cysteine, lactose, electrolyte-deficient agar (CLED) agar is used to isolate and differentiate urinary tract bacteria, since it inhibits *Proteus* species swarming and can differentiate between lactose fermenters and nonfermenters.

- **Granada medium**

Granada medium is used to isolate and differentiate Group B streptococcus (GBS), *Streptococcus agalactiae* from clinical samples. GBS grows in granada medium as red colonies and most of accompanying bacteria are inhibited.

- **Hektoen enteric agar (HEA)**

HE agar is designed to isolate and recover fecal bacteria belonging to the *Enterobacteriaceae* family. It is particularly useful in isolating *Salmonella* and *Shigella*.

- **Lysogeny broth (LB)**

- **MacConkey agar (MAC)**

MAC is a selective and differential medium used to differentiate between *Gram-negative* bacteria while inhibiting the growth of *Gram-positive* bacteria. The addition of bile salts and *crystal violet* to the agar inhibits the growth of most Gram-positive bacteria, making MacConkey agar selective. Lactose and *neutral red* are added to differentiate the lactose fermenters, which form pink colonies, from lactose nonfermenters that form clear colonies. An alternative medium, *eosin methylene blue* (EMB) serves a similar purpose.

- **Mannitol salt agar (MSA)**

MSA is also a selective and differential medium. The *mannitol* indicates organisms that ferment mannitol: mannitol fermentation produces *lactic acid*, lowering the pH and turning the plate yellow. The salt is to select for *halophiles*; organisms that cannot withstand a high salt content are unable to grow well.

- **Mueller-Hinton agar (MHA)**

MHA contains beef infusion, *peptone*, and *starch*, and is used primarily for antibiotic susceptibility testing. It can be in a form of *blood agar*.

- **Nutrient agar**

Nutrient agar is usually used for growth of nonfastidious organisms and observation of pigment production. It is safe to use in school science laboratories because it does not selectively grow *pathogenic* bacteria.

- **Önöz agar**

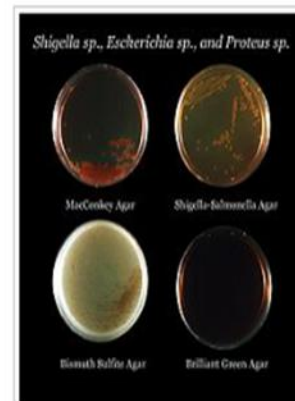
Önöz agar allows more rapid bacteriological diagnosis, as *Salmonella* and *Shigella* colonies can be clearly and reliably differentiated from other *Enterobacteriaceae*. The yields of *Salmonella* from stool samples obtained, when using this medium, are higher than those obtained with LEIFSON agar or *Salmonella-Shigella* agar (SSA).

- **Phenylethyl alcohol agar (PEA)**

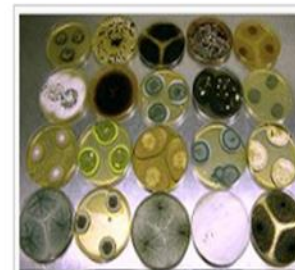
PEA selects for *Staphylococcus* species while inhibiting Gram-negative bacilli (e.g., *Escherichia coli*, *Shigella*, *Proteus*, etc.).



Hemolyses of *Streptococcus* spp. (left) α -hemolysis (*S. mitis*); (middle) β -hemolysis (*S. pyogenes*); (right) γ -hemolysis (= nonhemolytic, *S. salivarius*)



Four types of agar plate demonstrating differential growth depending on bacterial *metabolism*



Fungi (ascomycetes) growing in axenic cultures, each of which is a

Bile esculin agar (BEA)

□ is used for the isolation of **Enterococcus** and **group D Streptococcus species**.

CLED agar

- ❑ cysteine, lactose, electrolyte-deficient agar.
- ❑ is used to isolate and differentiate **urinary tract bacteria**, since it inhibits Proteus species swarming.
- ❑ can differentiate between lactose fermenters and nonfermenters.

Granada medium

- ❑ is used to isolate and differentiate group B Streptococcus, *Streptococcus agalactiae* from clinical samples.
- ❑ It grows in Granada medium as red colonies and most of accompanying bacteria are inhibited.

Hektoen enteric agar

- is designed to isolate and recover fecal bacteria of the **family Enterobacteriaceae**. It is particularly useful in isolating **Salmonella** and **Shigella**.

MacConkey agar

- ❑ is a selective and differential medium used to differentiate between **gram-negative** bacteria while inhibiting the growth of gram-positive bacteria. The addition of bile salts and crystal violet to the agar inhibits the growth of most gram-positive bacteria, making MacConkey agar selective.
- ❑ Lactose and neutral red are added to differentiate the **lactose fermenters**, which form pink colonies, from lactose nonfermenters that form clear colonies. An alternative medium, eosin methylene blue serves a similar purpose.

Mannitol salt agar

- ❑ selective and differential medium.
- ❑ The mannitol indicates organisms that ferment mannitol: mannitol fermentation produces lactic acid, lowering the pH and turning the plate yellow. The salt is to select for halophiles; organisms that cannot withstand a high salt content are unable to grow well.

Mueller–Hinton agar

- contains beef infusion, peptone, and starch, and is used primarily for **antibiotic susceptibility testing**. It can be in a form of blood agar.

Lysogeny broth

- is used to culture *Escherichia coli*.

Nutrient agar

- ❑ is usually used for growth of **nonfastidious organisms** and observation of pigment production. It is safe to use in school science laboratories because it does not selectively grow pathogenic bacteria.

Önöz agar

- ❑ allows more rapid bacteriological diagnosis, as **Salmonella** and **Shigella colonies** can be clearly and reliably differentiated from other Enterobacteriaceae.
- ❑ The yields of Salmonella from stool samples obtained, when using this medium, are higher than those obtained with LEIFSON agar or Salmonella–Shigella agar.

Phenylethyl alcohol agar

- ❑ selects for **Staphylococcus species** while inhibiting Gram-negative bacilli (e.g., Escherichia coli, Shigella, Proteus, etc.).

Absence of E.coli for:

- 1) **Nonaqueous oral product**
- 2) **Aqueous oral product**

Absence of Staph.aureus for:

- 1) **Oral mucosal,gingival, cutaneous, nasal and ear product**
- 2) **Vaginal products**
- 3) **Inhalation products (excluding nebulized products)**

Absence of Ps.aeruginosa for:

- 1) **Oral mucosal,gingival, cutaneous, nasal and ear product**
- 2) **Vaginal products**
- 3) **Inhalation products (excluding nebulized products)**

Absence of Candida albicans:

- 1) **Vaginal products**

Absence of bile tolerant Gram-negative bacteria:

- 1) **Inhalation products (excluding nebulized products)**