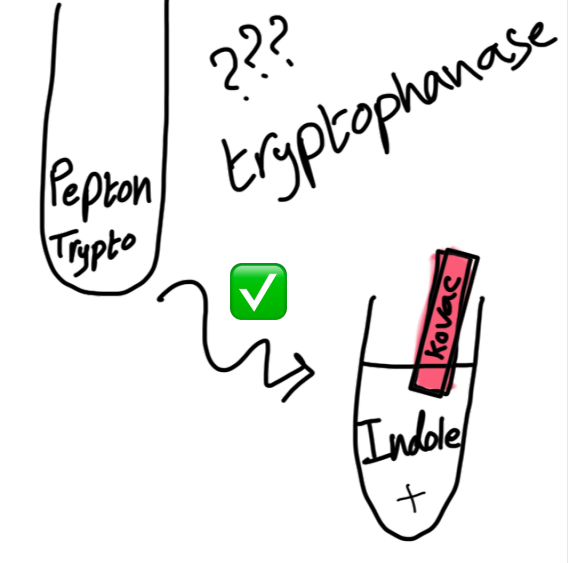
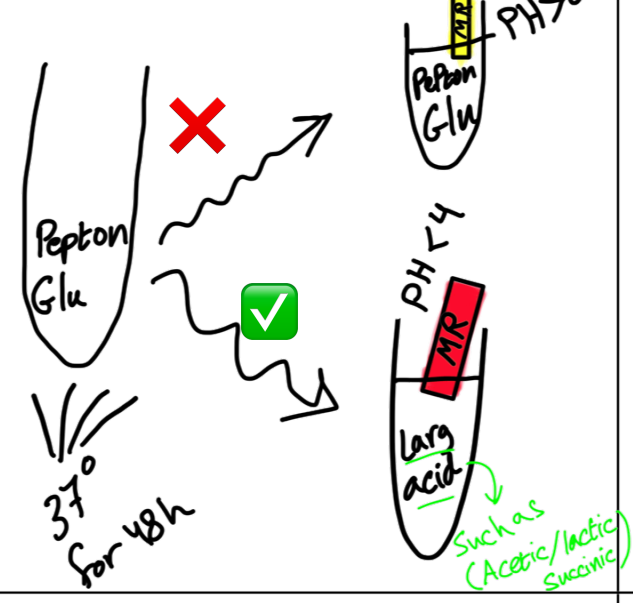


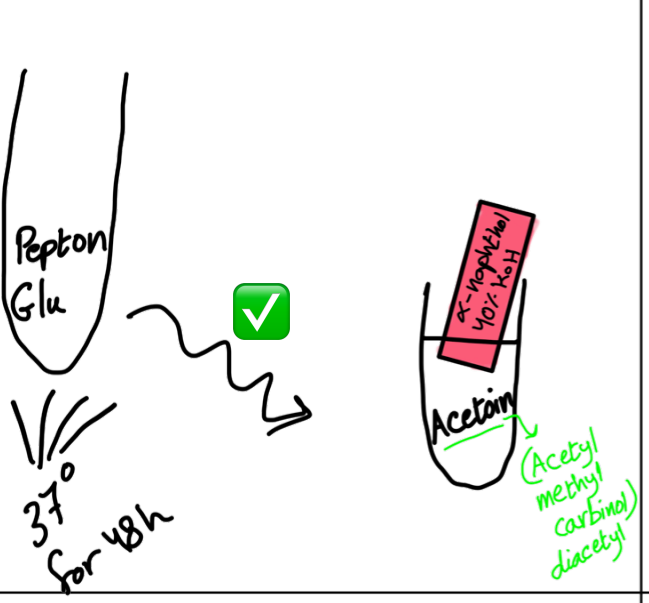
Indole test



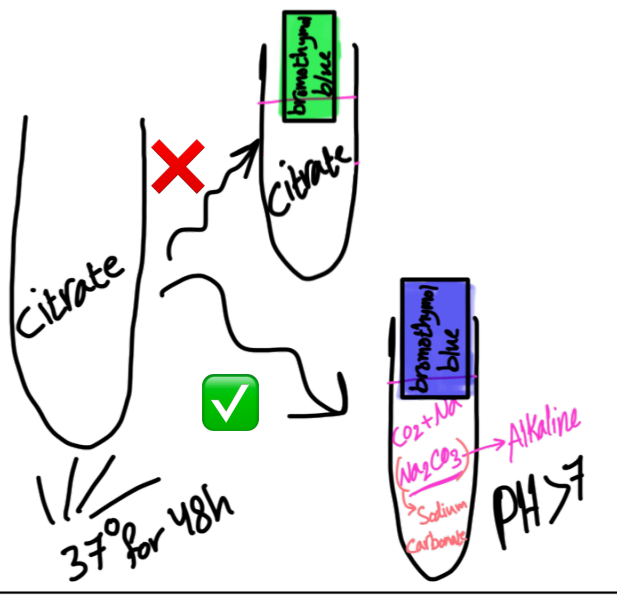
Methyl red test



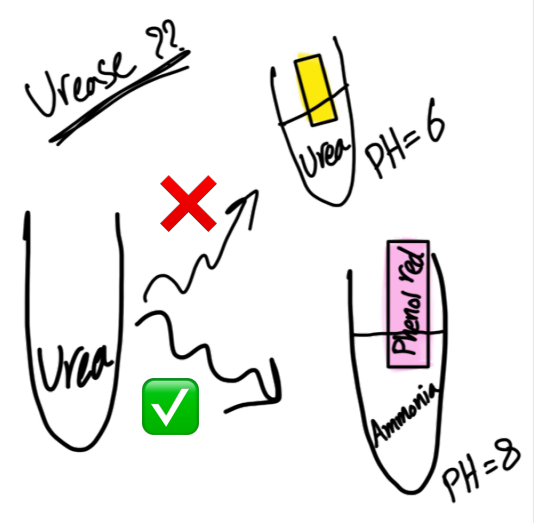
Voges-Proskauer test (V.P)



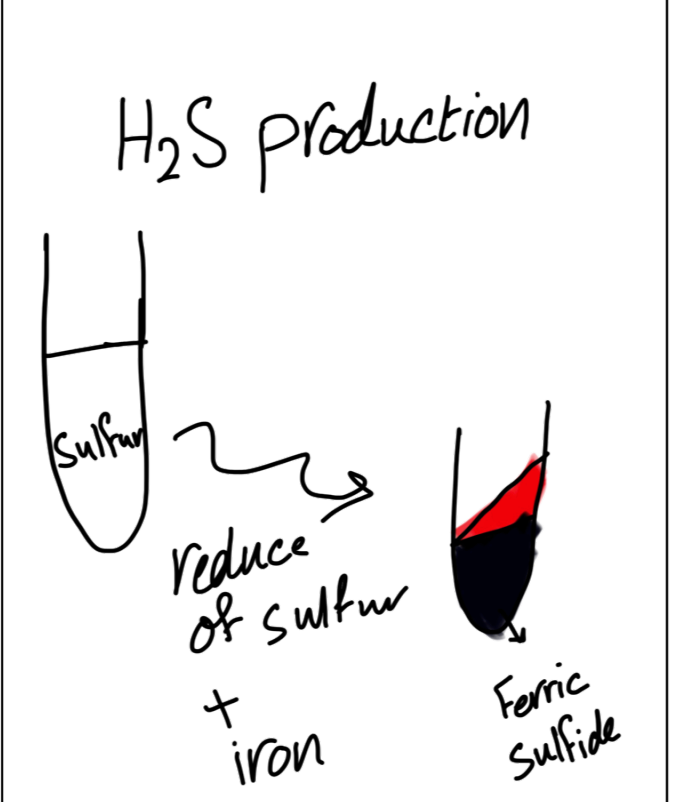
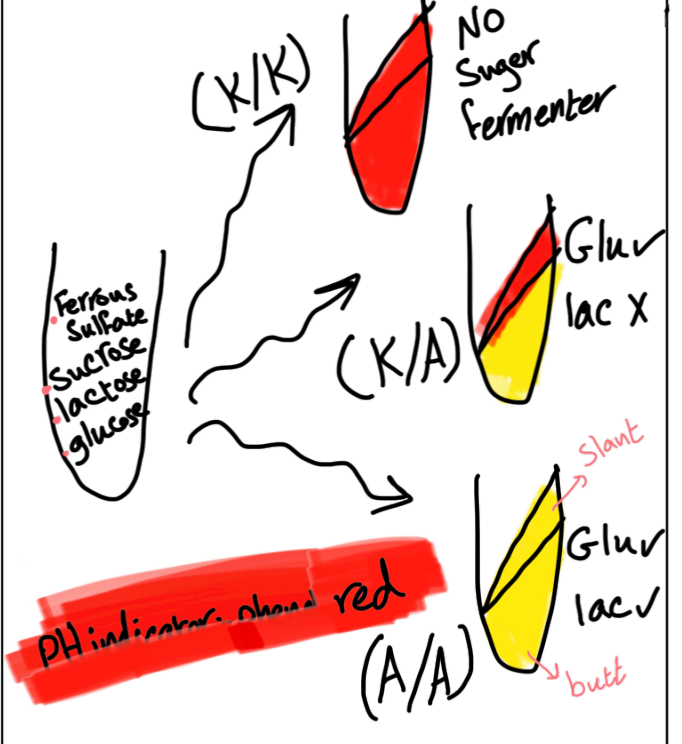
Citrate utilization test



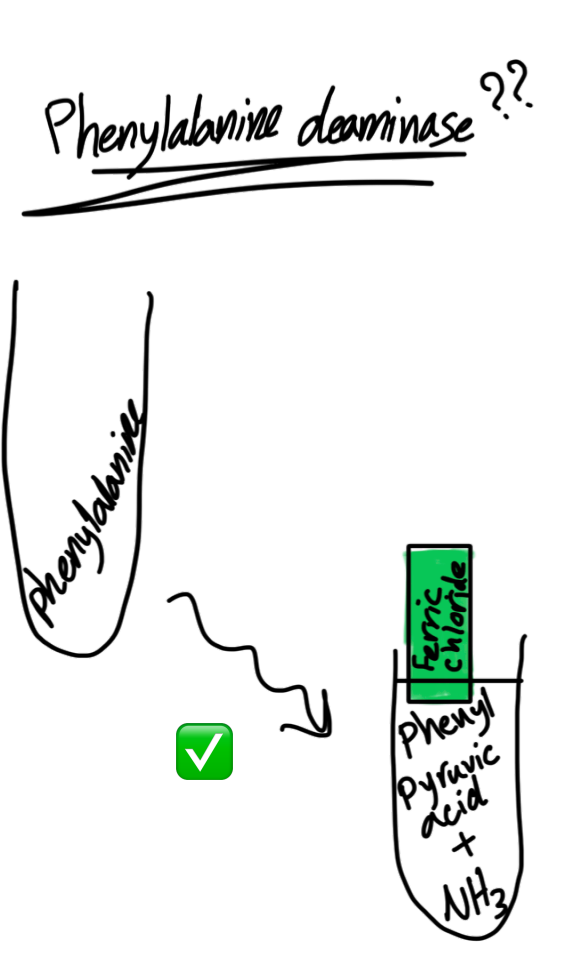
Urease test



TSI

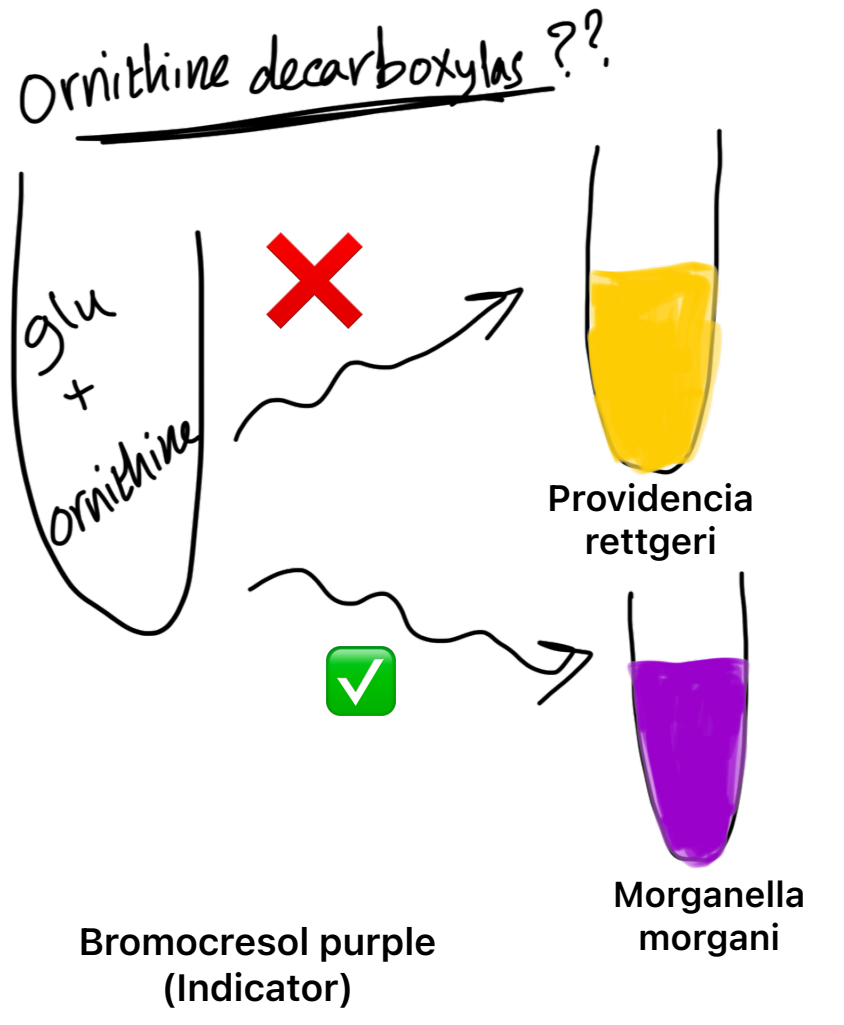


Phenylalanine deaminase



Distinguishes Proteus from Salmonella & Shigella

Ornithine decarboxylase



(API)

The analytical profile index (API) (Biochemical tests for identification) Several API systems for different groups of organism



Oxidase test

Some bacteria produce oxidase enzyme. Detection by adding few drops of colorless oxidase reagent. Colonies turn deep purple in color (positive).

Oxidase Test

- All Enterobacteriaceae are oxidase-negative.
- This test is used to differentiate enterobacteriaceae from Pseudomonas which is oxidase positive.

Catalase test

Some bacteria produce catalase enzyme. Addition of H2O2 lead to production of gas bubbles (O2 production).

Catalase test:

- Is used to differentiate between staphylococci (catalase +ve) and streptococci (catalase -ve).
- Principle: $2 H_2O_2 \xrightarrow{\text{Catalase enzyme}} 2 H_2O + O_2$
- Procedure:
 - Smear a colony of the organism to a slide
 - Drop H₂O₂ onto smear
 - Observe

Coagulase test

Some bacteria produce coagulase enzyme. Coagulase enzyme converts fibrinogen to fibrin (plasma clot). Detected by slide or test tube method.

Coagulase test:

- Is used to differentiate Staphylococcus aureus from coagulase-negative staphylococci.
- Principle: fibrinogen $\xrightarrow{\text{coagulase}}$ fibrin (clot formation)