

## Indole Test(SIM Medium)

### Purpose

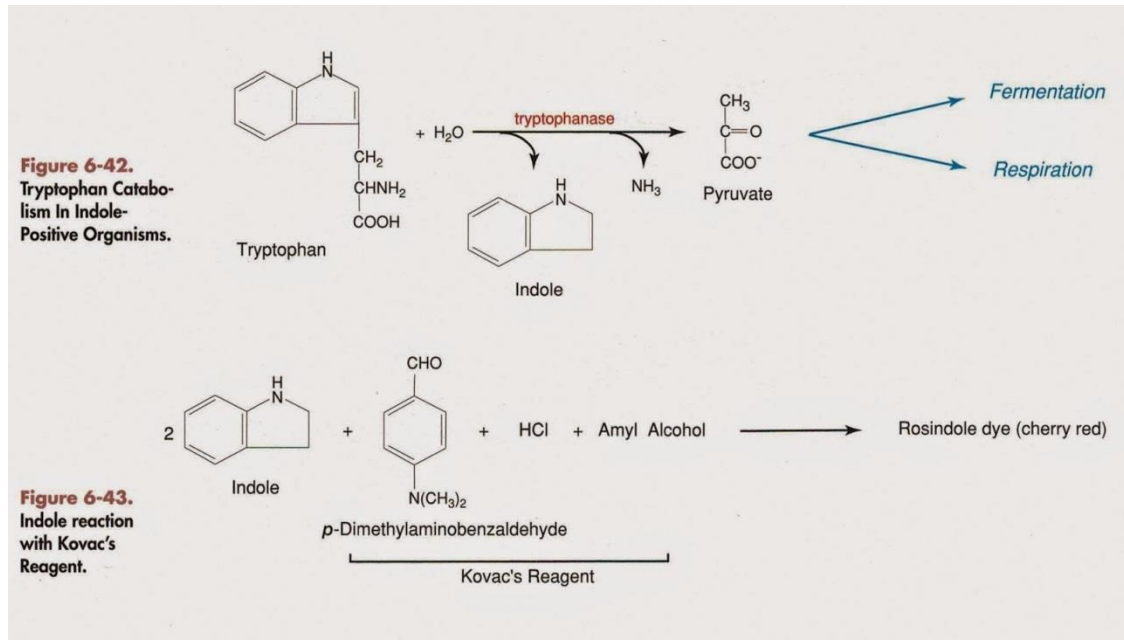
The Indole Test identifies bacteria capable of producing indole using the enzyme **tryptophanase**. The Indole Test is one component of the IMViC battery of tests (*Indole*, *Methyl Red*, *Voges-Proskauer*, and *Citrate*) used to differentiate the *Enterobacteriaceae* .

### Principle

The Indole Test, as it appears in this manual, is performed using SIM medium. SIM medium also tests for motility and sulfur reduction (SIM is an acronym for Sugar-Indole- Motility). It is a semi-solid medium that is formulated with casein and animal tissue as sources of amino acids, an iron containing compound, and sulfur in the form of sodium thiosulfate.

Indole production in the medium is made possible by the presence of tryptophan (contained in casein and animal protein). Bacteria possessing the enzyme tryptophanase can hydrolyze tryptophan to pyruvate, ammonia (by deamination), and indole .The hydrolysis of tryptophan in SIM medium can be detected by the addition of Kovacs' reagent after a period of incubation. Kovacs' reagent contains dimethylamino - benz aldehyde (DMABA) and HCl dissolved in amyl alcohol . When a few drops of Kovacs' reagent are added to the tube,it forms a liquid layer over the solid medium. DMABA then reacts with any indole present and produces a quinoidal compound that turns the reagent layer red . The formation of red color in the reagent layer indicates a positive reaction and the presence of tryptophanase. No red color is indole- negative.

An instantaneous indole test is available and done by placing bacterial growth on a paper slide impregnated with 5% DMABA . A positive result is formation of pink on the paper slide.



### INDOLE TEST RESULTS

This is SIM medium inoculated with *Morganella morganii* (+) on the right and *Enterobacter aerogenes* (-) on the left



### RAPID INDOLE TEST BBL™

*DrySlide™* (Available from Becton-Dickinson, Sparks, MD.) This slide was inoculated with *Escherichia coli* (+) on the left and *Enterobacter aerogenes* (-) on the right.