

**DISCUSSION:**

Key FMN tablets produce a semi-solid growth medium which demonstrates three separate properties of nonfermentative gram-negative bacilli. These properties are fluorescence., motility, and liberation of nitrogen gas from nitrates. Fluorescence is due to the formation of fluorescein, and is observed by use of long-wave ultraviolet light (Wood's Lamp). FMN contains a special peptone which greatly enhances fluorescence, usually within 18 hours after inoculation. The denitrification of the nitrates is demonstrated by bubbles trapped in the gel. Test for nitrite formation by adding reagents after all other readings have been made.

**MSDS:**

Each tablet contains agar, peptones, assorted salts, a pH indicator, and other ingredients necessary to make a tablet and 2 mg. of sodium nitrite which is harmful if inhaled, ingested, or absorbed through the skin. Ingestion of 1 gram has been known to cause death in humans. In case of ingestion, contact a physician immediately. In case of other accidental contamination, flood with large amounts of water.

**STORAGE:**

Store tightly covered in a dry place at room temperature.

**QUALITY CONTROL:**

Tablets should be tested with known positive and negative organisms. Dispose of used materials in a manner appropriate for biohazardous materials.

**MATERIALS REQUIRED:**

FMN Agar Tablets are provided in bottles of 50 tablets. Usage requires fresh 24 hour growth on media appropriate for the specimen. Consult a clinical microbiology manual for suggestions. The following items are required but not provided: test tubes, distilled water, inoculating loop, and Wood's Lamp (K1698 or equivalent).

**PROCEDURE:**

- (1) Add one FMN Agar tablet to 2 mls of distilled water in a test tube.
- (2) Autoclave at 15 pounds pressure for 15 minutes. Cool in a slanted position. If the test is to be used immediately, steaming in a water bath is adequate, as the heating will destroy most bacteria and the test will be completed before any spore-forming organisms have a chance to grow.
- (3) When cool, inoculate with a needle by stabbing to the bottom of the tube.
- (4) Incubate at 35-37C for 18-24 hours. Observe the tube for expected reactions.

**INTERPRETATION OF RESULTS:**

Fluorescence: In a darkened workroom, a positive test will show a bluish light when irradiated. An un-inoculated tube should be tested as negative control.

Motile organisms migrate away from the site of inoculation rapidly, forming a diffuse film over the surface of the medium with gradual migration of the motile organisms creating turbidity in the gel. Non-motile organisms grow in the form of a dense mass close around the stab line. Denitrification: Free nitrogen gas is indicated by breaks in the agar, beginning at the butt. Nitrate reagents may be added after all other readings are done.

**LIMITATIONS:**

Since some cultures show more fluorescence at room temperature, we recommend the use of both FMN and FLN, the latter being incubated at 37 C (a temperature which favors denitrification and acidification of lactose) with FMN incubated at room temperature. Most fluorescent organisms are positive at both temperatures but some strains are encountered which are fluorescent at one but not both temperatures, so the use of the two temperatures increases the accuracy of the identification.

**REFERENCES:**

- 1) Bailey and Scott's Diagnostic Microbiology, 7th Edition, Chapter 28, pages 422-437
- 2) Manual of Clinical Microbiology, 7th Edition, Chapter 33. pages 517-525.

**USUAL REACTIONS- FLN AND FMN**

	Fluo.	Lac.	Nit.	Mot.
<i>P. aeruginosa</i>	+	-	+	+
<i>P. fluorescens</i>	+	W	W	+
<i>P. putida</i>	+	-	-	+
<i>P. maltophilia</i>	-	+	-	+
<i>P. pseudomallei</i>	-	+	+	+
<i>A. anitratus</i>	-	+	-	-
<i>A. lwoffii</i>	-	-	-	-

W=WEEK OR VARIABLE REACTION



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