

X & V Factor Procedure

I. Principle and Clinical Significance:

Once it has been determined that an isolate exhibits microscopic and colonial properties suggestive of *Haemophilus*, speciation is done by determining the X and V factor requirements of the organism.

II. Materials and Reagents:

- A. Sterile Saline (or BBL Prompt)
- B. BHI plate (Brain Heart Infusion)
- C. Taxo X Factor Strip
- D. Taxo V Factor disk
- E. Sterile Swab

III. Culture Material:

- A. Selected colonies that exhibit *Haemophilus* properties.

IV. Test Method:

- A. Prepare a McFarland 0.5 standardized suspension of the isolate in sterile normal saline or inoculate a BBL Prompt.
- B. Using a swab, inoculate the BHI plate.
- C. Place the Taxo X Factor Strip in middle of plate.
- D. Place the V Factor disk 0.5 to 1cm away from the X Factor strip.
- E. Incubate in the CO₂ incubator @ 35°C for 18-24 hours.

V. Quality Control:

Quality control is performed every week using *H. parainfluenzae* and *H. influenzae*. If control results do not give expected results (see below), the test cannot be interpreted or reported, and the supervisor must be notified.

VI. Interpretation of Test Results:

The plate must be examined to determine which of the growth factors promoted satelliting growth. If there is growth only around the V disk, the organism requires the V factor only. If there is growth around the X factor strip only, the organism requires the X factor only. If organism grows between the V disk and the X strip, it requires both the V and the X factors. See table below for interpretation.

Species	Factor Requirement	
	X	V
<i>H. influenzae</i>	+	+
<i>H. aegyptius</i>	+	+
<i>H. haemolyticus</i>	+	+
<i>H. ducreyi</i>	+	--
<i>H. parainfluenzae</i>	--	+
<i>H. parahaemolyticus</i>	--	+
<i>H. segnis</i>	--	+
<i>H. paraphrophilus</i>	--	+
<i>H. aphrophilus</i>	w	--

VII. Limitations of Test:

The strips must not be placed too close together because interpretation will be difficult. Care must be taken not to prepare too heavy a suspension, or X & V factor carryover may occur from the primary growth medium.

VIII. References:

1. Manual of Clinical Microbiology, American Society for Microbiology, 8th Edition 2003.

Effective 07/31/2001

Reviewed by Microbiology Director, Dr. Ann Robinson: 07/31/2001

Reviewed by Medical Director, Dr. Joseph Schappert: 03/10/2010

Reviewed by Microbiology Supervisor, Jerry Claridge: 07/31/2001, 7/17/2002, 10/29/2003, 04/2004, 11/2005, 11/2006, 10/2007, 05/2008, 05/2009, 04/01/2011, 03/2013, Jason Ammons 05/2015

Updates and Revisions: