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Butyrate Disc Test

INTENDED USE

The Pulse Butyrate Disc Test is used to detect the presence of butyrate esterase in bacterial colonies isolated on culture media for the presumptive identification of *Moraxella (Branhamella) catarrhalis*.

SUMMARY & PRINCIPLES

Moraxella (Branhamella) catarrhalis once thought to be a non-pathogenic organism is now considered a possible agent in respiratory infections. *M.catarrhalis* can be found at the same sites as pathogenic *Neisseria* spp. and shares some similar physiological and biochemical characteristics, it is important to have a screening test for the differentiation of *Moraxella catarrhalis*². The Butyrate Disc Test demonstrates the enzymatic hydrolysis of bromo-chloro-indolyl butyrate, which creates a blue color reaction. *Neisseria* spp. do not hydrolyze this substrate and will remain colorless.

Infections of the respiratory tract account for the majority of clinical conditions involving *M.catarrhalis* as an etiologic agent. These infections include otitis media, sinusitis, bronchitis, and pneumonia. Although otitis media caused by this organism may occur at any age, most studies show that infections are prevalent in the pediatric population¹.

In one study the prevalence of *M.catarrhalis* in children with respiratory tract infections was 68%. A Study of nasopharyngeal colonization with *M.catarrhalis* during the first two years of life showed that 66% of 120 cultures obtained from children become colonized during the first year and that 77.5% were colonized by the end of the second year. Higher colonization rates have also been seen in preschool children with asthma (70%) than in healthy children (33%)¹.

MATERIALS SUPPLIED

Butyrate discs are provided in ready to use tubes.

Additional Items Required:

Loop or stick for harvesting colonies, pipets, and distilled water (pH: 6.5 -7.5).

MSDS

Butyrate discs are impregnated with a solution of bromo-chloro-indolyl butyrate in an organic solvent and then air-dried. This product contains no material known at this time to be hazardous.

STORAGE & STABILITY

Store in a tightly closed bottle at 0-8 Degree Celsius in the dark.

PRECAUTIONS

For in vitro diagnostic use only. Do not use after expiration date. Handle all materials as potentially infectious and according to Good Laboratory Practice.

SPECIMEN COLLECTION

The Test requires fresh 24-hour growth on chocolate, blood agar or other appropriate culture media. The specimen should be oxidase positive, gram-negative diplococcus exhibiting typical morphology of *Moraxella catarrhalis*. *Neisseria* spp. from human sources should be negative.

PROCEDURE

1. Add only 1 drop (about 0.05ml) of water to the tube.
2. Inoculate with a visible paste of the suspected culture. Then incubate at room temperature for 5-15 minutes. The color reaction will darken upon standing. Do not interpret results after 30 minutes as false positives can occur.
3. The development of a blue color indicates positive for *Moraxella catarrhalis*. A negative test will be colorless.

RESULTS

Positive: Blue Color

Negative: Colorless

QUALITY CONTROL

Butyrate discs should be tested with known positive and negative organisms as outlined in the Manual for Clinical Microbiology. We suggest *B. catarrhalis* ATCC 25240 (positive) and *N. gonorrhoeae* ATCC 19424 (negative) as the test organisms. All finished tests should be discarded in a manner appropriate for biohazardous materials.

LIMITATIONS

This is only part of the overall identification scheme for identification. Further tests are necessary for confirmation. Many strains of *Moraxella* as well as other organisms are also butyrate esterase positive while most *Neisseria* spp. are negative.

REFERENCES

1. Riou, J.Y. et al.: "Hydrolyse de la tributyrine par les *Neisseria* et les *Branhamella*". (French). Ann.Microbiol. (Ins.Pasteur) 132A, 159-169 (1981).
2. Riou, JY. Guibourdenche: "Branhamella catarrhalis. New Methods of bacterial diagnosis." Drugs 31, (suppl. 3), 1-6 (1986).

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