Colistin-Oxolinic Acid Blood Agar: a Selective Medium for the Isolation of Gardnerella vaginalis

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Received 14 November 1984/Accepted 6 February 1985

Colistin-oxolinic acid blood agar (COBA) was described by Petts (3) as a selective medium for the isolation of streptococci from clinical specimens. COBA medium can be used as an alternative to Columbia blood agar with colistin and nalidixic acid (CNA) (1). Because I am using CNA as a selective medium for the isolation of Gardnerella vaginalis (2), I decided to investigate the use of COBA as an alternate selective medium. An advantage of COBA is that it inhibits the growth of staphylococci and coryneforms as well as of most gram-negative bacteria.

My initial formulation of COBA consisted of Columbia agar base (GIBCO Diagnostics, Madison, Wis.) with 5% defibrinated sheep blood (Woodlyn Laboratories Ltd.), 10 mg of sodium colistimethate (Parke-Davis Canada Inc.) per liter, and 5 mg of oxolinic acid (Sigma Chemical Co., St. Louis, Mo.) per liter (COBA-5). CNA consisted of Columbia agar base with 5% defibrinated sheep blood, 10 mg of sodium colistimethate per liter, and 10 mg of nalidixic acid (Winthrop Laboratories, Div. Sterling Drug Inc., New York, N.Y.) per liter. COBA-5 and CNA were inoculated in parallel with 211 consecutive vaginal or cervical swabs received in my laboratory. Both media were incubated at 36°C in a 7% CO2 atmosphere for 48 h.

COBA-5 grew 60 isolates of G. vaginalis, and CNA grew 59 isolates; however, the 48-h incubation period allowed some strains of staphylococci to overcome the inhibiting effect of the antibiotics and grow on COBA-5. A total of 31 specimens showed growth of staphylococci on both media, whereas 50 yielded growth of staphylococci only on CNA. COBA-5 was able to inhibit staphylococcal growth in 50 (61.7%) of the 81 specimens that grew staphylococci on CNA. G. vaginalis isolates were identified by the method of Yong and Thompson (4).

I decided to increase the oxolinic acid content of the COBA medium to 10 mg/liter (COBA-10) and 20 mg/liter (COBA-20) and to compare the recovery of G. vaginalis and the inhibition of staphylococci on these two media and on CNA. I inoculated 406 vaginal and cervical specimens in parallel onto CNA, COBA-10, and COBA-20. Tables 1 and 2 summarize the results.

COBA-10 was able to inhibit staphylococcal growth in 181 (82.3%) of the 220 specimens that grew staphylococci on CNA, whereas COBA-20 inhibited staphylococci in 198 specimens (90.0%). Although COBA-20 was more effective in inhibiting staphylococci, six isolates of G. vaginalis did not grow on COBA-20, and five isolates showed a reduced colony size when compared with their size on CNA and COBA-10. CNA and COBA-10 grew lactobacilli, yeasts, hemolytic streptococci, and viridans group streptococci equally well, but vaginal diphtheroids and some enterococci were inhibited by COBA-10.

COBA-10 is a selective medium useful for isolating G. vaginalis from vaginal and cervical specimens. It yields an isolation rate comparable to that of CNA while reducing growth of commensal and contaminating flora.

I thank Sandu Toma, Dorothy Chang, and Anne Prytula for critical review and assistance concerning the manuscript.

LITERATURE CITED