

III6. Health Microbiology and Biotechnology

P301. The effect of culture media on in vitro growth and biofilm formation of Bacterial vaginosis (BV)-associated pathogens

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Background

Bacterial vaginosis (BV) is an important vaginal bacterial disorder worldwide, being characterized by a change in the vaginal microbial composition from a health-associated microbiota to a dense polymicrobial biofilm. Although this biofilm plays an important role in BV progress and recurrence, very little information exists regarding its in vitro formation. The current study aimed to investigate the influence of different culture media on the planktonic growth and biofilm formation ability of BV-associated microorganisms, namely *Gardnerella sp.*, *Atopobium vaginae*, *Lactobacillus iners*, *Mobiluncus curtisii*, *Peptostreptococcus anaerobius* and *Prevotella bivia*.

Method

Five different media including Brain heart infusion broth supplemented with yeast extract, starch and gelatin (sBHI), Brucella broth supplemented with hemin and vitamin K1 (BHV), New York City broth supplemented with 10% inactivated horse serum (NYC), Schaedler broth (SB), and a medium simulating genital tract secretions (mGTS) were used with the mentioned composition, but also supplemented with ascorbic acid, excepting mGTS which already has this component in its composition. Optical density measurement and crystal violet staining were performed to characterize the planktonic and biofilm bacterial growth.

Results and Conclusion

Significant planktonic growth was observed in NYC and NYC supplemented with ascorbic acid for *Gardnerella sp.*, *A. vaginae* and *L. iners*. Conversely, *M. curtisii* showed an insignificant growth in all media tested. *P. bivia* presented higher growth in sBHI with ascorbic acid, followed by NYC, while *P. anaerobius* had better growth in SB and SB with ascorbic acid, also followed by NYC. Biofilm quantification showed high in vitro biofilm growth for *Gardnerella sp.*, *P. anaerobius* and *P. bivia* in almost all culture media excluding BHV and BHV with ascorbic acid. Contrary, only NYC was able to promote biofilm formation for *A. vaginae*, *L. iners* and *M. curtisii*. Taken together, this suggests that NYC is an optimal medium for in vitro growth and development of BV-associated biofilms.

References & Acknowledgments

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