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Optimization of *in vitro* model for growth of *Gardnerella vaginalis* biofilm

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Bacterial vaginosis (BV) is the most common vaginal disorder in women of reproductive age. Despite its high prevalence, BV aetiology remains elusive. Recently, it was described that BV occurrence involves the presence of an adherent biofilm on vaginal epithelium, being *Gardnerella vaginalis* the predominant bacterial species. Furthermore, this bacterial biofilm persists on the vaginal epithelium after therapy with metronidazole, suggesting that *G. vaginalis* biofilm plays a key role in treatment failure and recurrence of BV. Despite the relevance of *G. vaginalis* biofilms in the BV pathogenesis, there has not been detailed information addressing the environmental conditions influence in *G. vaginalis* biofilm formation. In this sense, we designed a series of *in vitro* assays in order to evaluate the influence of some common culture conditions on biofilm formation of this bacterial species. Thus, we used four *G. vaginalis* strains isolated from women with BV and compared their biofilm-forming ability using distinct culture conditions, namely inoculum concentration, incubation period, feeding conditions and culture medium composition. Our results showed that growth conditions strongly influenced *G. vaginalis* biofilm formation and that biofilm formation was enhanced when starting the culture with a higher inoculum, supplemented the medium with glucose and using a fed-batch system. To conclude, this study provides new insights about optimized culture conditions for *G. vaginalis* biofilm formation, which is extremely important for future fundamental studies involving this bacterial community.

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