Event Abstract

Assessing Interactions Between Periodontal Pathogens, Human Oral Cell Lines and Probiotics

Raja Moman 1*, Ruth Ledder 2, Andrew McBain 2.

1 Department of Microbiology and Immunology, Faculty of Pharmacy, University of Tripoli, Libya.
2 Division of Pharmacy and Optometry, School of Health Sciences, Faculty of Biology, Medicine and Health, The University of Manchester, Oxford Road, Manchester, United Kingdom.

**Background:** Probiotics are live micro-organisms which, when administered in adequate amounts, confer a health benefit on the host. Probiotic research has become a hot topic in medicine. As in other fields of healthcare and have been introduced for prevention and treatment of periodontal diseases. Few studies have evaluated the possible benefits of adding probiotics to infected oral tissues with periodontal pathogens. **Method:** We have investigated weather probiotics species namely, L. rhamnosus GG ATCC 53103, L. reuteri ATCC 55730 and S. salivarius K-12 can inhibit F. nucleatum ATCC 10953, P. gingivalis ATCC 33277 and A. actinomycetemcomitans ATCC 33384 respectively of HOKs and GSMM-K cells in culture. **Results:** When both cell lines were exposed to F. nucleatum, P. gingivalis and A. actinomycetemcomitans, (13.1%, 21.12% and 50.90%) of GSMM-K respectively and (34.75%, 40.78% and 51.97%) of HOKs respectively remained viable after 24hr incubation. However, in the presence of 108 CFU/ml of live different probiotics species tested, the viability of the infected GSMM-K cells exposed to Lactobacillus rhamnosus GG increased for F. nucleatum, P. gingivalis and A. actinomycetemcomitans to 69.34 (p=0.00018), 64.05% (p<0.001) and 66.74 (p<0.05) respectively and for HOKs viability increased to 69.82% (p=0.000018), 75.45% (p=0.00018) and 90.38% (p=0.0023). L. reuteri addition increase viability of GSMM-K infected by F. nucleatum, P. gingivalis and A. actinomycetemcomitans to 72.86% (p=0.0046), 58.46% (p=0.0096) and 71.73% (p=0.05) respectively and HOKs viability infected by same pathogens to 74.65% (p=0.0001), 77.08% (p=0.0005) and 67.31% (p=0.067) respectively. S. salivarius increases viability of GSMM-K cells to 61.33% (p=0.015), 65.51% (p=0.0029) and 67.84% (p=0.035). For HOKs 81.67% (p=0.001), 81.7% (p=0.0079) and 55.71% (p=0.44) respectively following the same order above for infection with pathogens. Furthermore, live bacteria, lysate or spent culture fluid all protect both cell lines infected by tested pathogens apart from addition of S. salivarius spent culture fluid to A. actinomycetemcomitans infected GSMM-K cells (p=0.46) and S. salivarius both bacterial suspension (p=0.44) and lysate (p=0.14) to A. actinomycetemcomitans infected HOKs cells. **Conclusion:** These results suggest that probiotics can be used in oral products to protect against oral periodontal pathogens toxicity.

**Keywords:** Periodontal, Pathogens, Probiotics.


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*Correspondence:* Dr. Raja Moman, Department of Microbiology and Immunology, Faculty of Pharmacy, University of Tripoli, Libya, rjamoman@googlemail.com