## OMICSCOUP <u>c o n f e r e n c e s</u> <u>Accelerating Scientific Discovery</u> 2<sup>nd</sup> International Conference on **Clinical Microbiology & Microbial Genomics**

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## Antibacterial effect of pomegranate against periodontal pathogens and the effect on the biofilm formation by *S. mutans*

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Dental caries, disease of the tooth, is caused mainly by *Streptococcus mutans* and *Lactobacilli*. Periodontal disease, disease of the tooth supporting tissue is caused by many bacteria including *Porphyromonasgingivalis*, *Prevotellaintermidia* and *Capnocytophaga* species. Fruit of *Punicagranatum*, commonly known as pomegranate is known to have antimicrobial effect against enteric pathogens. This study investigated antimicrobial effect of *P. granatum* against oral pathogens. Pomegranate crude extracts were prepared using methanol. Clinical isolates and ATCC cultures of *S. mutans*, *Lactobacilli*, *P. gingivalis*, *Capnocytophaga* sp. and *P. intermedia* were tested. Minimum bactericidal concentrations (MBC) were obtained using double dilution technique. In addition, effect of sub inhibitory concentrations of extract on biofilm and acid production by *S. mutans* were investigated.

The crude extract killed S. mutans and lactobacilli at 12.5 and 25 mg/ml respectively. MBC for *P. gingivalis* and *P. intermedia* were 0.1 mg/ml and 0.78 mg/ml respectively. *Capnocytophaga* was completely eliminated at 0.39 mg/ml. Although the acid production by *S. mutans* was not inhibited by the crude extract, it significantly reduced the biofilm formation within 6 hours (p=<0.05). Although crude extract of *P. granatum* was unable to inhibit *S. mutans* at low concentrations, it inhibits the biofilm formation and inhibits the growth of periodontal pathogens at low concentrations. Our preliminary results have shown that P. granatum have potential to be used to prevent dental caries and periodontal diseases.

## **Biography**

Zandiswa Gulube a Ph.D. student completed her Master's of Science from University of the Witwatersrand in 2000 and started working as Research scientist in 2003 at the Molecular Hepatology Research Unit (MHRU) at the same institution. She was selected for an exchange program between Nagoya University-Japan and National Research Foundation (NRF) South Africa in 2007. She then joined the Department of Clinical Microbiology and Infectious Disease in 2007 as a Scientist. She has published three journal papers and is the recipient of NRF Thuthuka Award.

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