

## Guest editorial

## Antibiotic alternatives – it's only natural

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A paradigm shift in the treatment of infectious diseases is necessary to prevent antibiotics becoming obsolete – where appropriate, alternatives to antibiotics ought to be considered. There are already several non-antibiotic approaches to the treatment and prevention of infection, including probiotics, phages and phytomedicines. Complementary and alternative therapies are viewed favourably by many patients; they often feel that conventional therapy is not working and they believe that there are fewer detrimental side-effects with a more natural approach. Many report significant improvement while taking complementary and alternative medicines.

Unfortunately, the medical profession has been slow to embrace these therapies and good scientific data are still scarce. However, as we approach the 'post-antibiotic era', the situation is changing. Jenny Wilkinson from Charles Sturt University has examined the use of complementary and alternative therapies by health professionals and reports her findings in this issue of the journal.

There is evidence that probiotics such as *Lactobacillus* spp. or *Saccharomyces boulardii* are useful in the prevention and treatment of diarrhoea, including *Clostridium difficile*-associated diarrhoea which can be difficult to treat and recurs frequently. Also in this edition of the journal, Dr Lynne McFarland, from the University of Washington, reviews the work, much of it her own, in this area. Bacteriophages have received renewed attention for both staphylococcal and gastrointestinal infections. Phytomedicines that have been utilised in the treatment of infections include

artemisinin for malaria, tea tree oil for skin infections, honey for wound infections, mastic gum for *Helicobacter pylori* gastric ulcers and cranberry juice for urinary tract infections.

Dr Shona Blair from the University of New South Wales has recently completed a PhD investigating the antimicrobial effects of honey and she summarises her findings in this journal. Our own group here at The University of Western Australia has spent the last 15 years looking at the antimicrobial activity of tea tree oil. In our paper, we concentrate on applications of tea tree oil as a disinfectant, and particularly activity against methicillin-resistant *Staphylococcus aureus* (MRSA). Finally, another essential oil that has received attention recently is lavender oil. Dr Heather Cavanagh, also at Charles Sturt University, describes her experiences with this product.

Many infections that may prove amenable to safe and effective treatment with non-antimicrobials do not necessarily involve resistant organisms. However, any reduction in the demands imposed on conventional antimicrobials is likely to alter the resistance that emerges to them. Clearly, there is now much more interest in complementary and alternative therapies. Equally clear is the fact that more data are required on the efficacy and safety of many alternative therapies. The recent Pan Pharmaceuticals debacle can only result in improvements in the industry in Australia; however, the question of who will fund the research needed remains unanswered.

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