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The antimicrobial activity of tea tree oil for decolonization of Methicillin-resistant *Staphylococcus aureus* (MRSA)

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The essential oil derived from the leaves of *Melaleuca atternifolia* by steam distillation is named as tea tree oil. Tea tree oil exhibits broad-spectrum of antimicrobial activity against a wide variety of micro-organism including bacteria, virus and fungus. It is believed that the antimicrobial properties of tea tree oil are due to the presence of its cyclic monoterpenes of which about 50% are oxygenated and about 50% are hydrocarbon. Monoterpenes acquire physicochemical characteristic of lipophilicity, which permits partitioning of lipophilic compounds into the lipid bilayer of the microbial cells. The interaction of tea tree oil lipophilic compounds with the lipid bilayer of the microbial cells causes dramatic changes in the structure of the bacterial cytoplasmic membrane leading to increase cell membrane permeability and damage cell function. Although the *in vitro* antimicrobial activity and *in vivo* efficacy of tea tree oil on *Staphylococcus aureus* have been reported, less is known about its efficacious in the decolonization of methicillin-resistant *Staphylococcus aureus* (MRSA) from wound colonized with MRSA. Since this wound has an implication for the control of the spreading of MRSA infection, we formulated and evaluated the efficacy of tea tree oil for MRSA clearing and wound healing. We have successfully to formulate a topical 10% tea tree oil preparation to clear around 88% MRSA from the chronic wounds within 28 days. All studied wounds treated with tea tree oil were completely healed.

Biography

Rainbow L P Lee has just completed her doctor of health science in the Hong Kong Polytechnic University. She is the advanced practice nurse in the school of nursing, the Hong Kong Polytechnic University. She teaches in both undergraduate and post-graduate nursing programmes and supervises student's final year research project. Apart from teaching, she also actively involves in research. She is currently the board member of the World Federation of Chinese Medicine Societies in Nanjing and a member in the research themes of Gerontological Nursing and Infection Control in Hong Kong.

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