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Resin-salve from Norway spruce - a potential method to treat infected chronic skin ulcers?

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Background: The home-made resin salve from Norway spruce is traditionally and widely used in folk medicine to heal various skin infections and wounds in Northern Finland.

Objectives: We have performed laboratory studies and clinical trial to solve the mechanism and effectiveness of resin salve.

Results: The resin salve exhibited a bacteriostatic effect against all tested Gram-positive bacteria important in human medicine including methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococcus (VRE), but the resin salve was not effective against Gram-negative bacteria. An exception among the Gram-negative bacteria was *Proteus vulgaris* against which resin salve was effective. High amounts of lipophilic extractives, like resin acids were dissolved into water from the resin salve. Also, a large proportion of lignans and cinnamic acid were found in the water extract of resin salve. Preliminary results of randomized and controlled clinical pressure ulcer trial shows, that ulcers treated with traditional resin-salve healed more often (16/17) than ulcers in the control group (4/11) treated with Aquacel®-treatment (P = 0.004).

Conclusions: Resin acids of the traditional resin salve have bacteriostatic features against many typical wound pathogens and the salve appears to be clinically effective method for treating pressure ulcers.