New Compositions and methods for blocking Biofilm formation in a wide spectrum of medical devices that are used to introduce materials into patients.

Proposed Applications include the use of new compositions for topical antimicrobial protection around IV catheters, central venous lines, arterial catheters, dialysis catheters, PICC, drains, chest tubes, external orthopedic pins, and epidural catheters.

The continued emergence of antibiotic-resistant bacterial strains in the clinical setting has created the urgent need for new antimicrobial agents. This is particularly true for S. Aureus infections that are recalcitrant to antimicrobial agents even in the absence of resistant strains. The primary contribution factor to this is the formation of biofilms on both native tissues and indwelling medical devices. In many cases, physical methods are required to debride infected tissues or remove infected devices.

The present invention describes compositions and methods which act to disrupt bacterial biofilms. Enabling data demonstrate that the compositions of this invention are synergistic in disrupting active biofilms and include one phenolic glycoside or a derivative in combination with other antimicrobial agents. The compositions described in this invention are proposed to be active against the following organisms, Staphylococcus, Streptococcus, Peptostreptococcus, Corynebacterium, Clostridium, Lysteria, Bacillus, Enterobacteriaceae, Pseudomonas, moraxella, Helobacter, Stenotrophomomas, Bdellovibrio, Legionella and the fungi Canida. The compositions that are active in eliminating biofilms are characterized compounds derived from various plant families that include Rosaceae, Fagaceae, Salicaceae, myrtaceae, Vitaceae, Ericaceae, Combretaceae, Eaeocarpaceae, Lythraceae, Symplacaseae, Hypooxidaceae, Amaranthaceae, Juncanidaeae, Juglandaceae, Spindaceae, Lamiaceae, Magnoliaceae, Gentianaceae, Apocynaceae, Morinaceae, Apiaceae, Rutaceae, Aquafoliaceae, Santalaceae, Cornaceae, Asteraceae, Bignoniaceae and Fabaceae.

Catheter-associated urinary tract infection (UTI) is the most common type of hospital-acquired infection, accounting for approximately 40% of such infections and for most of the 900,000 patients with nosocomial bateriuria in U.S. hospitals each year. Recent studies have shown that indwelling urinary catheters are used in approximately 20% of short term hospital patients which confer a predisposition to bacteriuria and that the commercial silver-impregnated catheters are not able to prevent bacterial colonization in vitro under in-flow conditions. Manufactures such as Lubriath IC (silver hydrogel-coated latex) and Lubrisil IC (silver hydrogel-coated silicone) catheters (Bard Medical, Covington, Georgia), Kendall DOVER silver Foley catheter (silver hydrogel silicone) (Tyco Healthcare, Mansfield, Massachusetts), RELEASE-NF catheter (nitrofurazone-
coated silicone) (Rochester Medical Corp., Stewartville, Minnesota) are currently exploring different compositions to address biofilm formation.

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