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Congresso Nazionale della Società Italiana di Microbiologia



26-29 settembre 2018
Palermo, Fondazione Sant'Elia

P011 ID54 Effect of pomegranate juice and peel extracts on cariogenic bacteria: an in vitro study
Pagliuca Chiara, Colicchio Roberta, Scaglione Elena, Pagliarulo Caterina, Sateriale Daniela, Mantova Giuseppe, Russo Spena Assunta, Ferrazzano Gianmaria F, Salvatore Paola

P012 ID 155 Antimicrobial and Antibiofilm Activities of the Italian Hemp (*Cannabis sativa* L.) Essential Oil Against *Staphylococcus aureus*
Puca Valentina, Carradori Simone, Locatelli Marcello, Menghini Luigi, Sisto Francesca, Maiolini Claudia, Badodi Benedetta, Grande Rossella

P013 ID 22 Helix aspersa muller mucus (Helixcomplex®) p41 protein prevents *Pseudomonas aeruginosa* growth and promotes mammalian bronchial epithelial cell proliferation.
Rizzo Roberta, Bortolotti Daria, Alogna Andrea, Gentili Valentina, Rotola Antonella, Di Luca Dario, Trapella Claudio

P014 ID 108 Epigenetic modulator UVI5008 inhibits MRSA by interfering with bacterial gyrase
Folliero Veronica, Franci Gianluigi, Cammarota Marcella, Zannella Carla, Sarno Federica, Schiraldi Chiara, Iovene Maria Rosaria, de Lera Angel R., Altucci Lucia, Galdiero Massimiliano

P015 ID 83 Synergistic effect of abietic acid with oxacillin against methicillin-resistant *Staphylococcus pseudintermedius*
Catania Maria Rosaria, Buommino Elisabetta, Vollaro Adriana, Nocera Francesca Paola, Lembo Francesca, Della Greca Marina, **De Martino Luisa**

P016 ID 134 Erythromycin-loaded nanodroplets as adjuvant therapeutics for infected chronic wounds caused by *Streptococcus pyogenes*
Allizond Valeria, Mandras Nardisa, Finesso Nicole, Argenziano Monica, Luganini Anna, Troia Adriano, Giribaldi Giuliana, Khadjavi Amina, Tullio Vivian, Prato Mauro, Cavalli Roberta, Cuffini Anna Maria, **Banche Giuliana**

P017 ID 146 In vitro activity of Vancomycin-loaded nanodroplets against *Enterococcus* spp
Parapini Silvia, Ticozzi Rosalia, Mazzaccaro Daniela, D'Alessandro Sarah, Perego Federica, Signorini Lucia, Argenziano Monica, Cavalli Roberta, Prato Mauro, Delbue Serena, **Basilico Nicoletta**

P018 ID 53 Green synthesis and evaluation of antibacterial activity of silver nanoparticles prepared by using ulvan as novel reducing and stabilizing agent from renewable algal biomasses
Grassi Lucia, Massironi Alessio, Morelli Andrea, Puppi Dario, Maisetta Giuseppantonio, Esin Semih, Chiellini Federica, **Batoni Giovanna**

P019 ID 47 Hydroxyppyridinone-based iron-chelating co-polymer (DIBI) has antibacterial activity against *Staphylococcus pseudintermedius* strains isolated from canine otitis externa.
Nocera Francesca Paola, Del Carmen Parquet Maria, Holbein Bruce, Iovane Giuseppe, De Martino Luisa

P020 ID 159 In vitro antimicrobial activity of vaginal lactobacilli cell-free supernatants against uro-pathogens by time-killing curves analysis
Scillato Marina, Mongelli Gino, Spitale Ambra, Privitera Grete, Musmeci Giorgia, Stefani Stefania, Santagati Maria

P021 ID 205 Effects of Cupral® on the formation and persistence of microbial biofilms in vitro
Meto Aida, Colombari Bruna, Pericolini Eva, Peppoloni Samuele, **Blasi Elisabetta**

P022 ID 149 Biofilm production and rapid discrimination of *L. pneumophila* by matrix assisted laser desorption ionization time-of-flight.
Cannella Sara, Fasciana Teresa, Bonura Celestino, Mascarella Chiara, Sciortino Miriam, DiStefano Salvatore Antonino, Lipari Dario, Simonte Maria Rosa, Graceffa Domenico, Giammanco Anna

P023 ID 219 Antimicrobial and antibiofilm activity of steroid derivatives against ESKAPE Pathogens
Guaragna Annalisa, Vollaro Adriana, Esposito Anna, Antonaki Eleni, Iula Vita Dora, **De Gregorio Eliana**

P024 ID 154 Detection and Characterization of Carbonic Anhydrases in the Outer Membrane Vesicles (OMVs) Released by *Helicobacter pylori* in the Planktonic and Biofilm Phenotypes
Grande Rossella, Ronci Maurizio, Del Prete Sonia, Puca Valentina, Carradori Simone, Muraro

Effects of Cupral® on the formation and persistence of microbial biofilms *in vitro*

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Introduction: endodontic biofilm is a microbial community, enclosed in a polymeric matrix of polysaccharide origin where are frequently found pathogenic microorganisms, such as Gram+, Gram- and opportunistic fungi, belonging to *Candida* spp, responsible for several endodontic pathologies. As clinical importance is the fact that biofilm is extremely resistant to common intra-canal irrigants, antimicrobial drugs and host immune defenses. The aim of this *in vitro* study was to evaluate the efficacy of Cupral® on planktonic forms of some pathogens, as well as to assess its ability to prevent and affect the formation/persistence of microbial biofilms.

Materials and Methods: ATCC strains of *S. aureus*, *P. aeruginosa* and *C. albicans* were exposed to various concentrations of Cupral® (an antiseptic compound based on calcium and copper hydroxide, used in endodontology) to investigate its antimicrobial efficacy. This activity has been evaluated in terms of microbial growth and cellular doubling time (optical density, colony forming units and doubling time assays), inhibition/persistence (crystal violet staining), viability of microbial cells embedded in the biofilms (live/dead stain) and pyoverdine production (fluorimetric assay). Finally, the morphology of Cupral®-treated biofilms was investigated by optical/confocal microscopy analysis.

Results: the addition of Cupral® to microbial cultures, influences, in a significantly and dose-dependent manner, the doubling time and growth of microbial cultures. Cupral® antimicrobial activity was also assessed on biofilms formation and persistence with meaningful decreases of residual biomass (observed reductions of 47-94% for *S. aureus*, 28-95% for *P. aeruginosa* and 27-75 % for *C. albicans*). Cupral®-treated biofilms analyzed by optical and confocal microscopy revealed loss of typical sessile structure, with few scattered microbial cells and a reduced thickness. Finally, the addition of Cupral® reduced both the number of embedded alive cells in the biofilms and the levels of pyoverdine in the culture supernatants.

Discussion and Conclusions: this pilot *in vitro* study provided the first evidences on Cupral® efficacy against microbial biofilms. The wide range of action (vs Gram+, Gram- and fungi) of Cupral® strongly suggests its use as compound in the prevention and treatment of main oral biofilm-associated infections.



47° Congresso Nazionale della
SOCIETÀ DI MICROBIOLOGIA ITALIANA

18 - 21 settembre 2019 | ROMA

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