

Regional response of pediatric long-term ventilation department at Cambridge University Hospital during the COVID-19 pandemic: 24-month retrospective data of monitoring and management of this population

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Abstract

Nosocomial infections are a threat to hospitalized patients and the advent of antimicrobial resistance has aggravated this scenario. In this presentation, you will learn how proteins secreted by *Bionectra ochroleuca* and *Aspergillus tubingensis* fungi were employed to synthesize silver nanoparticles (AgNP) that presented excellent antimicrobial properties. Using an eco-friendly approach, we obtained nanoparticles that proved effective against *S. aureus*, *E. coli* and several clinically relevant *Candida* strains. The nanoparticles' characterization was carried out using several methods, such as dynamic light scattering (DLS), transmission electron microscopy (TEM), and gel electrophoresis. Further experiments revealed that cotton and polyester fabrics impregnated with AgNP also exhibit antimicrobial properties against such pathogens, reaching up to 100% bacterial inhibition. The proteins capping the nanomaterial were identified, providing more insights into the mechanism of metal reduction. Recently, investigations on the nanoparticles' interaction with *Bacillus subtilis* biofilm showed inhibition over 70% at 8 μM . These results pave the way for the exploration of biological nanoparticles in clinical applications. We propose the material to be used as a means to prevent and /or decrease hospital-acquired infections.

Biography:

I am a post - CCT Paediatrician consultant, with a full GMC registration, on the Specialist registry. I have completed my 4 year of paediatric training in the 3rd Paediatric University Clinic of Athens (Greece) in 2012. I have done my sub-speciality training in Paediatric Respiratory Medicine in London, United Kingdom, where I worked at Royal London Hospital and Great Ormond Street Hospital. I am working as a Paediatric Respiratory Consultant and Lead of the Long Term Ventilation Department at the Cambridge University Hospital since December 2019. I have completed my 4 year Ph.D. in Paediatric Respiratory medicine (pre-school wheeze) at the 3rd Paediatric Clinic in the University Hospital of Athens ("Attikon"). I also hold two master degrees. The first MSc degree was in the field of histopathology and was entitled "Neoplastic

Human Disease: current clinic-pathologoanatomic approach and Research", undertaken at the Department of Pathologic Anatomy of the Medical School of the National and Kapodistrian University of Athens. My second MSc degree was in the public health sector, entitled "Infectious Diseases" from the National School of Public School in Athens, Greece. I have participated in several national, European and International conferences and have been the author for a number of publications and book chapters. I am heavily involved with peer, undergraduate teaching sessions. I have been leading on quality (QI) projects and audits, with the aim to monitor and improve the service delivered within the paediatric respiratory department and across the trust.

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