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AMR Mitigation: Potential Application of Natural Products

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Antimicrobial resistance (AMR), a phenomenon first reported not long after the discovery of the first antibiotic has snowballed into a significant public health issue, both in and out of the clinical setting. Challenges are constantly encountered during the mitigation process of antibiotic resistance in the clinical setting; especially with the emergence of the formidable superbug, a bacteria with multiple resistance towards different antibiotics; this resulted in the term multidrug resistant (MDR) bacteria. Furthermore, the advancement of an "antibiotic apocalypse" era has been made apparent based on articles such as the one published in the Lancet (February 2016), reporting the emergence of a new resistance in bacteria to colistin, usually considered a drug of last resort. This rapid and extremely worrying evolution of the resistance phenomenon has researchers to continue in their attempts to uncover novel antimicrobial agents in a bid to hopefully, significantly decelerate resistance evolvement amidst challenges. Recently, however, there has been a paradigm shift in the mining of potential antimicrobials; in the past, targets for drug discovery were from microorganisms and at current, this is mainly due to the beneficial attributes that plants are able to confer over that of microorganisms. This presentation aims to briefly discuss antibiotic resistant mechanisms employed by resistant bacteria followed by a detailed expository regarding the use of secondary metabolites from plants as a potential solution to the MDR pathogen with a focus on synergistic approaches. Finally, future prospects recommending enhancements to the usage of plant secondary metabolites to directly target antibiotic resistant pathogens will be discussed.

Biography:

Dr. Swee Hua Erin Lim is presently working as an Assistant Professor in the Division of Health Sciences, Abu Dhabi Women's College, Higher Colleges of Technology in Abu Dhabi, United Arab Emirates and affiliated as an Associate Professor to Perdana University-Royal College of Surgeons in Ireland, Selangor, Malaysia. She obtained her PhD from Universiti Putra Malaysia in 2010 with a National Science Fellowship awarded from the Ministry of Science, Technology and Innovation Malaysia and has been actively involved in research ever since. Her main research interests include analysis of carriage and transmission of multidrug resistant bacteria in non-conventional settings, besides an interest in natural products for antimicrobial testing. She is heavily involved in the elucidation of mechanisms of reversal of resistance in bacteria in addition to investigating the immunological analyses of diseases, development of vaccination and treatment models in animals. She hopes her work will support discovery of therapeutics in the clinical setting and assist in the combat against the burden of antibiotic resistance.