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A statistical bioprospection tool for investigating herbal candidates against multi drug resistant tuberculosis

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Drug resistance infectious disease has become a major health problem warranting organization in public and private sector to work together to remove out this problem. Resistance to antibiotics is becoming a serious threat worldwide because of the popular habit of popping pills at will, leading to a situation in which even simple infection acquired outside the hospital are turning drug resistant owing to 70% of the community acquired infections to be categorized as multi-drug resistant infections. Despite the availability of anti-infective drugs and vaccines, resurgence of multidrug resistance tuberculosis (MDR-TB) and their global escalating rate demands for a panacea. In 2012, WHO estimated that 3.7% of new TB patients in the world have been shown to harbor multi-drug resistant strains (MDR-TB). The cases of MDR-TB increases burden on public health gradually with a rise of 0.1% MDR-TB cases per annum, since 2009. Emergence of antibiotic resistance in pathogens has become a bottleneck for the current chemotherapy aggravated further by side-effects and long-term therapy course. Presence of various secondary metabolites like tannins, alkaloids, terpenoids, etc., in plants make them a suitable candidate to be used as an alternative therapeutic agent against MDR bacteria by the virtue of synergistic effect with current drugs, efflux pumps inhibitor, immunomodulant, antibiotic potentiator, etc. This study provides us with a statistical bioprospection model to instigate the search of potential herbal candidates as therapeutic aid against MDR-TB. This model is based on investigating the potency of various herbal plants showing ethno medicinal importance with respect to MDR-TB as indicated by various scientific search engines based on priority indexing. Although search for potential leads will remain continue until doomsday but giving some leads enthralls towards searching of novel much effective strategies to combat with the pathogen.

Biography

Ankita Singh Chakotiya has completed her master's in Biotechnology from Jiwaji University, Gwalior and currently pursuing Ph.D. in Life Sciences from Institute of Nuclear Medicine and Allied Sciences, Defence Research and Development Organisation. She has qualified CSIR-UGC JRF. She has now been working towards demystifying multi-drug resistance in tuberculosis using natural alternatives.

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