conferenceseries.com

4th International Conference on

APPLIED MICROBIOLOGY, ANTIBIOTICS, ANTIMICROBIALS AND BENEFICIAL MICROBES

May 20-21, 2019 Tokyo, Japan

Study of antimicrobial potential of important indian medicinal plant extracts against pathogenic bacteria and fungi

Satish Kumar
Auj Innovedic, India

Presently emergence of multiple drug resistance to human pathogenic organisms is serious problem around the world, so development of alternative antimicrobial drugs for the treatment of infectious diseases is the need of hour. One approach is to search for medicinal plants, for possible antimicrobial property. In the present study five solvents viz. ethanol, methanol, chloroform, hexane and water was used for extraction from eleven selected plants and used against *E. coli, P. aeruginosa* which normally found in diabetic patients while *C. albicans* found in cancer patients. A total of 55 plant extracts were used in the present study. Antimicrobial activity of plant extract found maximum in Azadirachata sp. followed by *Embilica sp., Psidium sp., Citrus sp., Murraya sp., Cannabis sp. and Piper sp*. and minimum in Amaranthus sp. and Coriandrum sp. Ethanolic extracts of Azadirachata sp. and Embilica sp. while aqueous extracts of Cannabis sp. and Embilica sp. was most effective against *E. coli.* Ethanolic extract of *Cannabis sp*. showed maximum zone of inhibition against *P. aeruginosa* and methanolic extract of citrus sp. found most effective against *C. albicans* among eleven selected anticancer and antidiabetic plants. The MIC value of the ethanol extract of most promising plant i.e Azadirachata indica was recorded at 5% (5g/100ml). Results from the present study showed that 95% of ethanol extracts of *Azadirachata indica* had antimicrobial activity against all tested microorganisms. Antibiotic susceptibility of test microorganisms displayed that imipenem antibiotic has higher zone of inhibition of against *E. coli* followed by levofloxacin, cefotaxime, aztreonam, ceftazidime and amikacin. Against *P. aeruginosa* showed maximum inhibition zone followed by cefotaxime, amikacin, imipenem, azetronam and ceftazidime, while maximum zone of inhibition was recorded against *C. albicans* using ketoconazole followed by miconazole, nystatin, clotrimazole. These antibiotic principles are actually the defensive mechanisms of the plants against pathogens. Laboratory and clinical studies of eleven selected medicinal plants especially the most promising plant extract are required in order to better understand the antimicrobial properties so as to allows the scientific community to recommend their uses as an accessible alternative to synthetic antibiotics.

Publications in field of Applied Microbiology:

1. Bioprospecting potential of foliar endophytic fungi associated with commonly used Indian medicinal plants. Satish Kumar Rana, Ram Kumar Pundir and Amandeep Kaur. Journal of Pure & Applied Microbiology, 2016, 10(1): 173-181. (NAAS Rating: 6) (ISSN: 0973-7510).

2. Isolation and Screening of Cellulose Degrading Microorganisms and Evaluation of its Cellulolytic Activity. Viraj Krishna Mishra, Vishwa Rawat, Satish Rana and J. Dubey. Journal of Pure & Applied Microbiology; June 2015, 9(2): 1033-1038 (NAAS Rating: 6) (ISSN: 0973-7510).

3. Modeling of Simultaneous Application of Vibrio sp. (SK1) and Biochar Amendment for Removal of Pentachlorophenol in Soil. Santosh Kr. Karn, J. Satya Eswari, Vishnu Dayal Rajput, Satish Kumar and Awanish Kumar. Environmental Engineering Science, August 2017, 34(8): 551-561. Article DOI: https://doi.org/10.1089/ees.2016.0456. (Impact Factor: 1.426) (NAAS Rating:7.43) (ISSN: 1092-8758, Online ISSN: 1557-9018).

4. Biodegradation of phenol by free and immobilized Candida tropicalis NPD1401. Satish Kumar, Neeraj, Viraj Krishna Mishra and Santosh Kr. Karn. African Journal of Biotechnology, 2018, 17.3: 57-64. (NAAs Rating:4)

5. Probiotic potential of lactic acid bacteria isolated from food samples: an in vitro study. Ram Kumar Pundir, Satish Rana, Neha Kashyap and Amandeep Kaur. Journal of Applied Pharmaceutical Science, February 2013, 3(03): 085-093. Article DOI: 10.7324/JAPS.2013.30317. (SNIP: 0.649).

Biography

Dr. Satish Kumar has expertise in Assisted Reproduction Technology and Applied Microbiolgy.He is Chief Scientist and Head (Research and Development) Auj Innovedic Ayurvedic company Ambala, Haryana, India. He is actively engaged in Research and teaching in Department of Biotechnology. He has guided eleven M.Tech students in different research areas of Biotechnology and has been member and coordinator of various committees of college and university level. D r .Kumar has M.Sc degree in Biotechnology and Molecular Biology , Haryana Agricultural University ,Hisar and PhD in Animal Biotechnology from Chaudhary Devi Lal University , Sirsa , Haryan,India and Authored one Book and Three book chapters Book and Research articles in Journal of International and National Repute. He also serves as member in the scientific advisory board of International Journal of Animal Biotechnology, India. Dr,Kumar is popular speaker who delivered lectures on role of Biotechnology in human welfare and worked with scientists of International repute from top institutions world and and India. He has delivered many lectures in different institutions across country and at international level via webinar on topic " Advances in Biocatalysis and its impact on early and late development of small molecules to 12 PhD scientists and over 20 Research Associates to Merck Research Laboratories U.S,A. His Students working as Scientist and doing PhDs in US , Canada, Australia etc.

satishrana.biotech@gmail.com

Notes: