

2nd International Conference on **Animal & Dairy Sciences**

September 15-17, 2014 Hyderabad International Convention Centre, India

Antibiotic resistance and strategies to develop new antibiotics

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The use of low levels of antibiotics as growth promoters in animal feeds and indiscriminate use of antibiotics to treat human or animal infections are thought to be the cause of an alarming increase in antibiotic resistance among bacteria. Antibiotic resistant have been posing increasingly serious concern to the public, health specialist and animal raw and processed meat producers. These problems are now in high alarming state and scientist across the world are now focusing on alternative, yet effective means of preventing and treating emerging and reemerging diseases caused by different microbes.

Host defense peptides are prevalent throughout the nature as a part of the intrinsic defenses of most organisms and have been proposed as a blueprint for developing novel antibiotics. In order to design the antimicrobial peptides, the most common approach is either to retrieve the required genomic sequences from NCBI or to sequence the novel antimicrobial peptide gene. After that prediction of peptide is done from all these sequences to find out the consensus region, specific pattern of amino acid distribution and trace out the mature peptide for synthesis. On the basis of amino acid sequence of natural host defense peptides, various analogues can also be prepared by replacing with desired amino acid. Solid phase methodology can be used for synthesis and have to evaluate structurally and functionally. Designing and synthesis of antimicrobial peptides represents a promising strategy for the development of a new class of drugs to different infections cause by various microbes.

Biography

D J Kalita has completed his PhD from Indian Veterinary Research Institute (IVRI) in the year 2007 and completed his Post doctoral training from Institute for Animal Health, UK under DBT CREST AWARD in the year 2012. He has published more than 35 papers in reputed journals and serving as an editorial board member of reputed. Presently, he is working as Associate Professor in Faculty of Veterinary Science, Assam Agricultural University, Guwahati, Assam and is working as PI and Co PI in several externally funded project.

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