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Name of Scholar: Juhi Saraswat

Name of Supervisor: Dr. Rajan Patel

Name of Department/Centre: Centre for Interdisciplinary Research in Basic Sciences

Topic of Research: Study the Effect of Ionic Liquids on the Activity of Antimicrobial Peptides

Findings

Ionic liquids (ILs) are molten salts below 100°C, have several attractive properties viz. negligible vapor pressure, low volatility, and high thermal stabilities. Their fascinating properties viz. low vapour pressure, low volatility, etc. along with unparalleled tendency to “tune” its physicochemical properties through modifying the anion and cation moiety or by functionalizing the constituent ion. Moreover, ILs also show biological activities and excellent solvation properties. The properties of ILs can be tailored to allocate a fine-tuning of the physiochemical properties, and for specific desires. Hence, ILs application has grown up enormously in the field of chemistry and biology for the last many years. The complexation of antimicrobial peptides (AMPs) and ILs have proven beneficial in many pharmaceutical aspects that encourage to study of the interaction between antibacterial peptide. Hence, two AMPs (melittin and Nisin) and its combination with synthesised ILs were tested against *E. coli* and *S. aureus*. The results showed remarkable improvement in the MIC value of peptides. Other results obtained suggested the successful complex formation between MEL and ILs. Hemocompatibility and cytotoxicity results suggested that the ILs used in the study are non-toxic within the tested concentration and might help in developing more efficient, cost-effective and non-resistive antibacterial agent.