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Name of Scholar: **Yogesh Kumar**

Name of Supervisor: Prof. Rajan Patel

Name of Co-Supervisor: NA

Name of Department: Centre for Interdisciplinary Research in Basic Sciences

Topic of Research: **Study the interaction of antifungal drugs with ionic liquids in aqueous medium**

Findings

This study comprehensively investigated the interaction between antifungal drugs with ionic liquids (ILs) spectroscopically. Also, this study investigated the synergistic antifungal effect of antifungal drugs and ILs. Firstly, study investigated the interaction of antifungal drug with purchase imidazolium based ILs spectroscopically and observed that ILs with longer carbon chain showed higher binding and surface activity as compared to shorter carbon chain ILs. Further study demonstrated surface activity of ILs enhanced in the presence of drugs. Further this study investigated the antifungal activity of pure imidazolium based ILs, drug and drug-ILs system against candida albicans. The antifungal study demonstrated that ILs with longer carbon chain show better antifungal affect as compared to ILs with shorter carbon chain. Also, antifungal study suggested that imidazolium based ILs showed synergistic antifungal effect in the presence of antifungal drugs. Further study investigated the interaction of synthesized choline based ILs and drug-ILs conjugates with antifungal drugs. Herein, also this study observed that ILs and drug-ILs conjugates with longer carbon showed higher binding affinity and surface activity as compared to shorter carbon chain length. Similarly, the antifungal study synthesized ILs and drug-ILs system suggested that ILs with longer carbon chain showed potential antifungal effect as compared to ILs and drug-ILs system with shorter carbon chain length. Further this study investigated the cytotoxicity against Human Embryonic Kidney (HEK)-293 cell line and study revealed that studied system showed less toxic behaviour.

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