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Cytotoxicity and genotoxicity screening of 1-ethyl-3-methylimidazolium alkyl benzenesulfonate (EMIM-ABS) ionic liquids

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The ionic liquids are known for their low volatility and are now encountering applications in various fields based on the key concept of being green compared with conventional solvents. This study focuses on the determination of the toxicity of EMIM-ABS ionic liquids using the LDH (lactic dehydrogenase) and MTT ((3-(4, 5-dimethylthiazol-2-yl)-2, 5-diphenyltetrazolium bromide) assays to measure cytotoxicity and the Ames test to assess genotoxicity. EC50 for these EMIM-ABS ionic liquids was found to be around 5mM in the LDH assay and these values are in good agreement with the results from the MTT cytotoxicity assay. The EC50 concentration did not vary much depending on the type of anion used in the study. A spray of back mutant colonies were found on all the plates containing EMIM ABS ionic liquids in the Ames test signifying some genotoxicity associated with them. Increasing methyl groups on anion had an increased cytotoxic effect and had no conclusive effect in terms of genotoxicity.

Biography

Hiranmayee Kandala work as an Graduate Assistant Coach for South Dakota State University at Brookings, SD.

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