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Manoj Kumar Banjare, Kamalakanta Behera, Manmohan L. Satnami, Siddharth Pandey, Kallol K. Ghosh

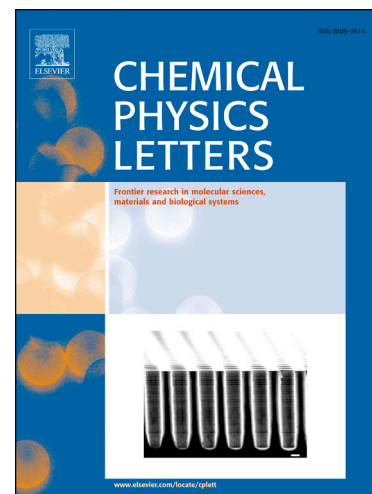
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Supra-molecular inclusion complexation of ionic liquid 1-butyl-3-methylimidazolium octylsulphate with α - and β -cyclodextrins

Manoj Kumar Banjare^a, Kamalakanta Behera^b, Manmohan L. Satnami^a, Siddharth Pandey^c and Kallol K. Ghosh^{a*}

^aSchool of Studies in Chemistry, Pt. Ravishankar Shukla University, Raipur (C.G.), 492010, India.

^bCentre for Interdisciplinary Research in Basic Sciences, JMI, Jamia Nagar, New Delhi, 110025, India.

^cDepartment of Chemistry, Indian Institute of Technology Delhi, Hauz Khas, New Delhi, 110016, India.

ABSTRACT:

Host-guest complexation between ionic liquid (IL) 1-butyl-3-methylimidazolium octylsulphate [Bmim][OS] and cyclodextrins (α - and β - CDs) have been studied. Surface tension, conductivity measurements revealed the formation of 1:1M stoichiometry for inclusion complexes (ICs) and further confirmed by UV-Visible and FT-IR results. The nature of the complexes has been established using interfacial and thermodynamic parameters. The aggregation number, Stern-Volmer constants, association constants were obtained from fluorescence quenching and Benesi-Hildebrand methods. The critical micelle concentration (cmc) and association constants of [Bmim][OS] are higher for β -CD as compared to α -CD. FT-IR spectra indicated that CDs and [Bmim][OS] could form ICs with stoichiometry (1:1M).

Keywords: Ionic liquid, Cyclodextrins, Inclusion complexes, Association constants, Physicochemical properties, Spectroscopic analysis.

* Author for correspondence

Tel: +91-771-2263146 (O).

Fax: +91-771-2262583

E-mail: kallolkghosh@yahoo.com

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