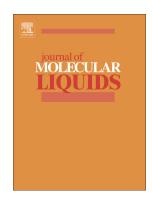
#### Accepted Manuscript

Enhanced partitioning of tryptophan in aqueous biphasic systems formed by benzyltrialkylammonium based ionic liquids: Evaluation of thermophysical and phase behavior



V.P. Priyanka, Anusha Basaiahgari, Ramesh L. Gardas

PII:	S0167-7322(17)33022-2
DOI:	doi:10.1016/j.molliq.2017.09.111
Reference:	MOLLIQ 7948
To appear in:	Journal of Molecular Liquids
Received date:	7 July 2017
Revised date:	27 August 2017
Accepted date:	27 September 2017

Please cite this article as: V.P. Priyanka, Anusha Basaiahgari, Ramesh L. Gardas, Enhanced partitioning of tryptophan in aqueous biphasic systems formed by benzyltrialkylammonium based ionic liquids: Evaluation of thermophysical and phase behavior. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Molliq(2017), doi:10.1016/j.molliq.2017.09.111

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

## **ACCEPTED MANUSCRIPT**

### Enhanced partitioning of Tryptophan in Aqueous Biphasic Systems formed by Benzyltrialkylammonium based Ionic Liquids: Evaluation of thermophysical and phase behavior

V.P. Priyanka<sup>1</sup>, Anusha Basaiahgari<sup>1</sup>, and Ramesh L. Gardas\*

Department of Chemistry, Indian Institute of Technology Madras, Chennai - 600 036, INDIA

\*Corresponding author: Phone: +91 44 2257 4248; Fax: +91 44 2257 4202

E-mail: gardas@iitm.ac.in ; Web: http://www.iitm.ac.in/info/fac/gardas

<sup>1</sup>V.P and A.B have contributed equally to this work

#### ABSTRACT

Ionic liquids (ILs) based aqueous biphasic systems (ABS) are envisioned to be promising separation and environmentally benign extraction media. In this context, novel ternary phase diagrams were determined for two ILs namely, Benzyltrimethylammonium chloride and Benzyltributylammonium chloride in presence of various potassium salts, K<sub>3</sub>PO<sub>4</sub>, K<sub>2</sub>HPO<sub>4</sub>, K<sub>2</sub>CO<sub>3</sub> and KOH at 298.15 K. The influence of benzyl group substitution on the cation of IL and nature of various potassium salts on the phase behavior were analyzed. Experimental binodal data were fitted to Merchuk's equation and tie line compositions and tie line length were also determined. Further, these IL based ABS in presence of various potassium salts have been systematically scrutinized for their efficiency to extract Tryptophan. For the better understanding of the role of thermophysical properties on phase behavior and extraction capability, density and viscosity of coexisting phases were measured at various compositions in the temperature range from 293.15 to 328.15 K. Enhanced extraction coefficients achieved for the studied combinations of ILs and inorganic salts indicate the possible use of these ABS as efficient extraction systems. Further, the study of thermophysical properties suggested that selected ternary systems present more desirable features in terms of density and viscosity as compared to traditional polymer based ABS.

------

*Key Words:* Liquid-Liquid Extraction; Aqueous Biphasic System; Ionic Liquid; Hofmeister series; Partition Coefficient.

Download English Version:

# https://daneshyari.com/en/article/5408195

Download Persian Version:

https://daneshyari.com/article/5408195

Daneshyari.com