Amphiphilic antidepressant drug amitriptyline hydrochloride under the influence of ionic and nonionic hydrotropes; micellization and phase separation

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JOURNAL OF INDUSTRIAL AND ENGINEERING CHEMISTRY
Volume: 19 **Issue:** 6 **Pages:** 1774-1780
DOI: 10.1016/j.jiec.2013.02.019
Published: NOV 25 2013
View Journal Impact

Abstract

Herein we report the micellization and cloud point of an amitriptyline hydrochloride (AMT) under the influence of cationic, anionic and nonionic hydrotropes. Anionic hydrotropes were employed to know the micellar and surface behaviors, besides studying the clouding behavior of AMT drug with cationic, anionic and nonionic hydrotropes. Tensiometric study has been performed and the properties studied include the critical micelle concentration (cmc), maximum surface excess at the air/water interface (Gamma(max)), the minimum area per of amphiphilic molecule at air/water interface (A(min)), and the different thermodynamic parameters, besides clouding phenomenon. Interaction parameters of micelles (beta(m)) and monolayer (beta(sigma)) indicate that drug-hydrotrope systems show better interaction at the interface than in micelles. (C) 2013 The Korean Society of Industrial and Engineering Chemistry. Published by Elsevier B.V. All rights reserved.

Keywords

Author Keywords: Amitriptyline hydrochloride (AMT); Critical micelle concentration (cmc); Surface tension; Hydrotropes; Thermodynamic parameter

KeyWords Plus: CLOUD POINT; PHARMACEUTICAL EXCIPIENTS; MOLECULAR-INTERACTIONS; NEUTRON-SCATTERING; AQUEOUS-SOLUTION; SURFACTANTS; ADDITIVES; ASSOCIATION

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Publisher

ELSEVIER SCIENCE INC, 360 PARK AVE SOUTH, NEW YORK, NY 10010-1710 USA

Categories / Classification

Research Areas: Chemistry; Engineering

Web of Science Categories: Chemistry, Multidisciplinary; Engineering, Chemical

Document Information

Document Type: Article

Language: English

Accession Number: WOS:000326317200003

ISSN: 1226-086X

eISSN: 1876-794X

Other Information

IDS Number: 243LF

Cited References in Web of Science Core Collection: 31

Times Cited in Web of Science Core Collection: 21