

J. Surface Sci. Technol., Vol 24 No. 12 pp. 1120 2008
©2008 Indian Society for Surface Science and Technology, India.

Fluorescence and Light Scattering Studies on Indole-3-Acetic Acid in Micellar Media

SEEMA ACHARYA* and SARASWATI VERMA

Department of Chemistry, J. N. Vyas University, Jodhpur 342 005, India

Abstract —Indole-3-Acetic Acid (I-3AA) is a phytochrome auxin found in tulip bulbs, in unripe pea seeds, in fungi and in rice cells. It is a plant growth hormone and is biologically and analytically an important molecule. Even small traces of I-3AA can be assayed by using fluorimetric method. The enhanced fluorescence emission intensity as well as quantum yield values in microheterogeneous micellar environment prove that the suspending hydrophobic I-3AA molecules are solubilized. The solubilizing action of surfactants on I-3AA has been supplemented by light scattering studies and some theoretically calculated spectral parameters like empirical fluorescence coefficient (k_f), fluorescence quantum yield (σ_f), molar extinction coefficient (ϵ) and Stokes' shift values.

Keywords : *Surfactants, I-3AA, Fluorescence, Solubilization.*

INTRODUCTION

Fluorescence technique is an important tool for the investigation of the interaction between micelles and biomolecules. Surfactants have been extensively used in areas related to detergency, emulsification, pharmaceuticals, agriculture, enhanced petroleum recovery, etc. as the surfactants exhibit pronounced interfacial properties [1-4]. Recently, polymer-surfactant systems are under extensive investigations [5-7]. The most striking feature of micelles is their ability to solubilize variety of compounds in different regions [8]. Micelles have been the subject of numerous investigations because of their importance as model system for mimicking biomembranes [9-10]. In recent years, extensive investigations have been made on the effects of the micelles formed by the surfactants, on diverse systems [11-13]. I-3AA is a plant growth

*Author for correspondence : ☞ Central School Scheme, Near Air Force Officers' Mess, Jodhpur (Raj), India. Email : Seema.acharya@gmail.com