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Novel bioactive imidazole-containing polymeric surfactants as petroleum-collecting and dispersing agents: Synthesis and surface-active properties

Ahmed H. Tantawy^{1,2}, Hany I. Mohamed^{1,*}, Ahmed A. Khalil¹, Kaouser A. Hebash¹,
Mahmoud Z. Basyouni¹

¹Chemistry Department, Faculty of Science, Benha University, Benha-13518, Egypt

²Hubei Insect Resources Utilization and Sustainable Management Key Laboratory, College of Plant Science and Technology, Huazhong Agricultural University, Wuhan 430070, People's Republic of China

*Email: hany.ibrahim@fsc.bu.edu.eg

Abstract

Novel series of imidazole-containing polymers and polymeric surfactants have been synthesized *via* an efficient procedure. It included copolymerization of 1-vinylimidazole (VIM) with lauryl methacrylate (LMA) initiated by benzoyl peroxide and the ¹H NMR spectroscopic data was utilized to estimate the monomer reactivity ratio. Conversion of polymers to surfactants was achieved through quaternization of the imidazole nitrogen with dimethyl sulphate. Spectroscopic techniques were used to elucidate the chemical structures of all synthesized compounds. The surface-active properties of polymeric surfactants beside their activities against various microbes were investigated. In addition, petroleum-collecting and dispersing properties of surfactants in diluted and undiluted form in varying waters were evaluated.

Keywords: 1-Vinylimidazole; Lauryl methacrylate; Reactivity ratios; Polymeric surfactants; Petroleum-dispersing agents.

1. Introduction

Macromolecules, which include diazole moiety, have been proposed as carrying an active part of various electrolyte-containing enzymes [1-3]. A great

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