STUDY OF THE SYNTHESIS AND ENVIRONMENTAL REMOVAL OF 4,4’-DIPYRIDINE DERIVATIVES

Ana Chira¹², Bogdan Bucur¹*, Toma Galaon³, Gabriel-Lucian Radu¹²

¹National Institute of Research and Development for Biological Sciences, Centre of Bioanalysis, 296 Splaiul Independentei, 060031 Bucharest, Romania
²Politehnica University of Bucharest, Faculty of Applied Chemistry and Materials Science, 1-7 Polizu Str., Bucharest 011061, Romania
³National Research and Development Institute for Industrial Ecology – ECOIND, 71-73 Drumul Podu Dambovitei, 060652 Bucharest, Romania

Abstract

Dipyridine derivatives are used on large scale and pose significant environmental problems. We have synthesized dipyridine derivatives with: 5-chlorovaleric acid, α-dichlorhidrin, iodoacetamide and 11-bromoundecanoic acid. The synthesized substituted compounds were investigated by LC-MS. The adsorptive removal of dipyridine derivatives from aqueous solution has been studied using medicinal activated carbon. The adsorption rate has been investigated under the controlled process parameters including adsorption time, carbon and organic compound concentration. The results from this study demonstrated that the activated carbon can be used as a low-cost adsorbent for the removal of environmental cationic dipyridine derivatives from the water environment.

Key words: 4,4’-dipyridine derivatives synthesis, activated carbon adsorption, LC-MS analysis

Received: November, 2014; Revised final: February, 2015; Accepted: February, 2015