

SYNTHESIS AND ANTIMICROBIAL EVALUATION OF SYMMETRICAL DIQUATERNARY AMMONIUM SALTS BEARING BIS 1,3,4-OXADIAZOLE RINGS MOIETIES

Sofiane Daoudi^{a*}, Tahar Benaissa^a, Djallal Eddine Adli^b, Nisserine Hamini-Kadar^c

^aPhysical Chemistry Studies Laboratory, University of Dr. Moulay Tahar, Saïda 20000, Algeria

^bDepartment of Biology, Faculty of Sciences and Technology, University of Dr. Moulay Tahar, Saïda 20000, Algeria

^cLaboratory of Applied Microbiology, Department of Biology, Faculty of Nature Sciences and Life, University of Ahmed Ben Bella 1.BP 16. Es-Senia 31100, Oran, Algeria

*e-mail: daoudi_20@yahoo.fr

Abstract. This study describes the synthesis of some novel compounds containing bis-1,3,4 oxadiazole bearing quaternary ammonium salt moieties. The target compounds were prepared from 2-(dimethylamino)ethyl methacrylate (DMAEMA) or 2-(diethylamino) ethyl methacrylate (DEAEMA), using adipic acid as starting material. All the newly synthesized compounds showed satisfactory analytic data for the proposed structures, which were confirmed by IR and NMR (¹H and ¹³C) spectroscopy. The newly synthesized compounds were evaluated for their antibacterial activity against various gram-positive and gram-negative strains of bacteria, and the antifungal activities were tested against three phytopathogenic fungi namely, *Fusarium oxysporum*, *Fusarium commune* and *Fusarium rodelens*. Some of the tested compounds displayed promising antibacterial and antifungal activities.

Keywords: 1,3,4-oxadiazole, quaternary ammonium compounds, DMAEMA, DEAEMA, antimicrobial activities.

Received: February 2016/ Revised final: March 2016/ Accepted: March 2016