Synthesis, Structural Analysis, and Screening of Some Novel 5-Substituted Aryl/Aralkyl-1,3,4-Oxadiazol-2-Yl 4-(Morpholin-4-Ylsulfonyl)Benzyl Sulfides As Potential Antibacterial Agents

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ABSTRACT

A series of new 5-substituted aryl/aralkyl-1,3,4-oxadiazol-2-yl 4-(morpholin-4-ylsulfonyl)benzyl sulfides 6a–k were synthesized by converting multifarious aryl/aralkyl organic acids 1a–k successively into corresponding esters 2a–k, hydrazides 3a–k, and 5-substituted aryl/aralkyl-1,3,4-oxadiazole-2-thiols 4a-k. Finally, the target compounds, 6a–kwere prepared by stirring 5-substituted-1,3,4-oxadiazole-2-thiols with 4-(4-(bromomethyl)phenylsulfonyl) morpholine (5) in the presence of N,N-dimethylformamide (DMF) and sodium hydride (NaH). The structures of the newly synthesized compounds were elucidated by spectroscopic techniques. In addition, the antibacterial activity of all the synthesized compounds was investigated in vitro against Gram-positive and Gram-negative bacteria by using ciprofloxacin as reference standard drug and the results showed that some of the tested compounds possessed good antibacterial activity.

KEYWORDS: 1,3,4-Oxadiazole, benzyl sulfide, 4-(4-(bromomethyl)phenylsulfonyl) morpholine, antibacterial activity

DOI:10.1080/10426507.2014.965816