

Synthesis of Brominated Pyrazoline Derived from Chalcone and Its Antimicrobial Activity

Authors : Annisa I. Reza, Jasril Karim

Abstract : Despite the availability of antimicrobial agents in the market, the urge to study and find other chemical compounds with the better potential of replacing them still tempting the scientists. This experiment is in the aim to explore a novel brominated pyrazoline ring which was made from intermediate chalcone as a candidate to answer the challenge. Using green chemistry approach by microwave irradiation from domestic oven, both known chalcone and 5-(2-bromophenyl)-3-(naphthalen-1-yl)-4,5-dihydro-1H-pyrazole were successfully synthesized. Pyrazoline's structure was confirmed based on UV, IR, ¹H-NMR, ¹³C-NMR and MS and together with its intermediate were examined against some microorganisms (Bacillus subtilis, Escherichia coli, and Candida albicans) under agar diffusion method. The results collected during experiment revealed that both tested compounds showed weak activity on B.subtilis which was proven by a zone of inhibitions, while there was no zone of inhibitions observed in E. coli and C. albicans. This is suggested because of the bulky structure around pyrazoline could not provide the main ring to interact with microbial's cell wall. The study shows that the proposed compound had the low capability as a promising antimicrobial agent, yet it still enriches the information about pyrazoline ring.

Keywords : antimicrobial, chalcone, microwave irradiation, pyrazoline

Conference Title : ICAMC 2018 : International Conference on Antibiotics and Medicinal Chemistry

Conference Location : Singapore, Singapore

Conference Dates : July 05-06, 2018