Accepted Manuscript

One pot three components microwave assisted and conventional synthesis of new 3-(4-chloro-2-hydroxyphenyl)-2-(substituted) thiazolidin-4-one as antimicrobial agents

Dattatraya N. Pansare, Nayeem A. Mulla, Chandrakant D. Pawar, Vikas R. Shende, Devanand B. Shinde

PII: S0960-894X(14)00551-4
DOI: http://dx.doi.org/10.1016/j.bmcl.2014.05.051
Reference: BMCL 21665

To appear in: *Bioorganic & Medicinal Chemistry Letters*

Received Date: 6 January 2014
Revised Date: 5 May 2014
Accepted Date: 15 May 2014

Please cite this article as: Pansare, D.N., Mulla, N.A., Pawar, C.D., Shende, V.R., Shinde, D.B., One pot three components microwave assisted and conventional synthesis of new 3-(4-chloro-2-hydroxyphenyl)-2-(substituted) thiazolidin-4-one as antimicrobial agents, *Bioorganic & Medicinal Chemistry Letters* (2014), doi: http://dx.doi.org/10.1016/j.bmcl.2014.05.051

One pot three components microwave assisted and conventional synthesis of new 3-(4-chloro-2-hydroxyphenyl)-2-(substituted) thiazolidin-4-one as antimicrobial agents

Dattatraya N. Pansare,[a] Nayeem A. Mulla,[b] Chandrakant D. Pawar ,[a] Vikas R. Shende,[b] Devanand B. Shinde *[a]

[a]*Department of Chemical Technology, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad 431 004, MS, India.*

[b]*Department of Biochemistry, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad 431 004, MS, India.*

Tel No.: +91 0240-2403308 Fax No.: +91 0240-2400413

**Corresponding author E-mail: dbsdattatraya10@rediffmail.com*

Abstract

A one-pot, three-component, microwave assisted and conventional synthesis of new 3-(4-chloro-2-hydroxyphenyl)-2-(substituted) thiazolidin-4-one (**4a-n**) was carried out by using N, N-dimethylformamide as a solvent with high product yield. Among these synthesized compounds (**4f**, **4g**, **4l** and **4m**) were found to be a broad spectrum molecule active against all bacterial and fungus strains tested, except fungus *A. niger*. Amongst the compounds (**4g**, **4l** and **4m**) were found to be more potent than respective standard drugs used in the experiment against *C. albicans*, *S. aureus* and *A. flavus* respectively. All synthesized compounds were also tested for their cytotoxic activity against HeLa and MCF-7 cell lines by the sulforhodamine B (SRB) assay. This study shows that all compounds were non-cytotoxic in nature, and confirmed their antimicrobial specificity apart from any general cytotoxicity.

Keywords: Thiazolidin-4-one, microwave-assisted synthesis, 2-amino-5-chlorophenol, antimicrobial, cytotoxicity.

The structural and therapeutic diversity coupled with the commercial viability of different types of small molecules has fascinated organic and medicinal chemists. There has been considerable most of interest in the chemistry of thiazolidin-4-one moiety. The derivatives of 4-thiazolidinone nucleus have also occupied a unique place in the field of medicinal chemistry.[1] The thiazolidin-4-one moiety display a wide range of biological activities like antibacterial,[2] anti-inflammatory,[3,4] anticancer,[5-8] anti-tuberculosis,[9] anticonvulsant[10] and analgesic[11] activities. Earlier studies on the pharmacological activities of thiazolidin-4-ones showed wide spectrums of antimicrobial activities.[12-14] Microwave assisted