

[Submit an article](#)[Journal homepage](#)

58

Views

0


CrossRef citations  
to date

0

Altmetric

Articles

# Synthesis and molecular design of mono aspirinate thiourea-azo hybrid molecules as potential antibacterial agents

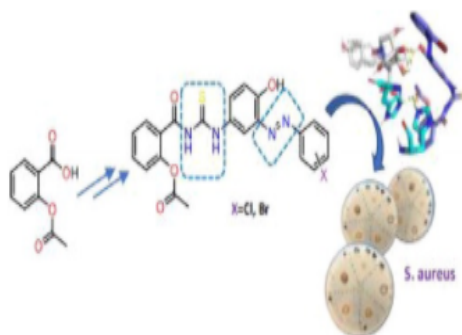
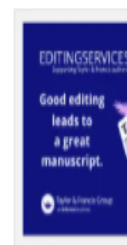
Zainab Ngaini , Ferlicia Rasin , Wan Sharifatun H. Wan Zulkiplee & Ainaa Nadiyah Abd Halim

Pages 275-282 | Received 15 Jun 2020, Accepted 23 Sep 2020, Published online: 08 Oct 2020

[Download citation](#) <https://doi.org/10.1080/10426507.2020.1828885>[Check for updates](#)[Full Article](#)[Figures & data](#)[References](#)[Supplemental](#)[Citations](#)[Metrics](#)[Reprints & Permissions](#)[Get access](#)[Select Language](#)[Translator disclaimer](#)

## Abstract

New mono aspirinate thiourea-azo derivatives **2a-f** were synthesized using aspirin as a natural product-based precursor, with 4-aminophenylazophenol derivatives in excellent 70–90% yields. Overall, **2a-f** gave excellent antibacterial activity against *Staphylococcus aureus* S48/81 and 2-(((3-((2-bromophenyl)diazenyl)-4-hydroxyphenyl)carbamothioyl)carbamoyl)phenyl acetate (**2d**) exhibited a larger zone of inhibition 10 mm, comparable to the standard ampicillin. The molecular docking analysis of **2d** against *S. aureus* tyrosyl-tRNA synthetase protein displayed a free energy interaction of  $-7.7$  kcal/mol compared to aspirin ( $-6.4$  kcal/mol).

**Keywords:** Aspirin, molecular docking, *S. aureus*, *E. coli*, antimicrobial[< Previous article](#)[View issue table of contents](#)[Next article >](#)[Sign in here  
to start your access](#)

## Related articles

[People also read](#)[Recommend articles](#)[In vitro cytotoxicity evaluation derivatives bearing Salix sp. o HK-1 cell lines >](#)[Norsyafikah Asyilla Nordin et al. Natural Product Research Published online: 3 Dec 2018](#)[Medicinal Importance, Coordination with Selected Metals \(Cu, Ag, Au\) of Thiourea Derivatives: A Review >](#)[Ezzat Khan et al.](#)