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Antibacterial assesment of aroylhydrazone derivatives *in vitro*

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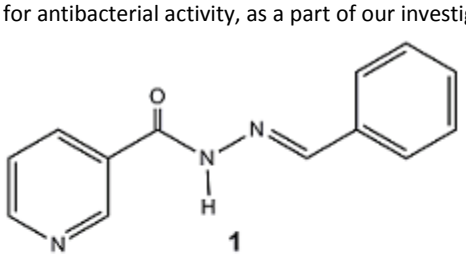
Abstract

Aroylhydrazones have attracted considerable attention for their wide range of biological activities, such as antibacterial, anti-fungal, antitumor and anti-inflammatory properties.[1,2,3] Additionally, hydrazones as chelating agents were investigated as potential drugs for treatment of iron-overload associated diseases.[4] In the present work, a group of 13 derivatives was studied for antibacterial activity, as a part of our investigations on aroylhydrazones.



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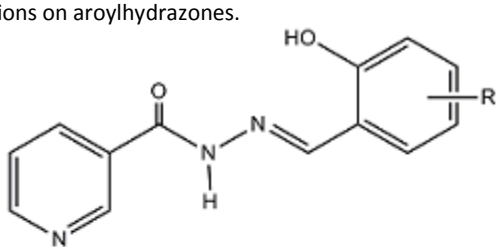
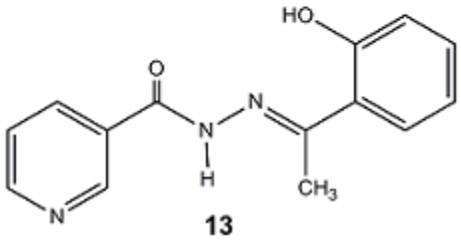


R = H (**2**); 3-OH (**3**); 4-OH (**4**); 5-OH (**5**);
3-OCH_3 (**6**); 4-OCH_3 (**7**); 5-OCH_3 (**8**);
3-Cl (**9**); 5-Cl (**10**); 3,5-Cl (**11**); 5-NO_2 (**12**)



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The *Staphylococcus aureus* ATCC 6538 and *E. coli* ATCC 10536 was used as a model strains. Modified serial and twofold microdilution method according to the EUCAST 5.1 recommendations was used to determine OD_{540} after incubation. MIC (as IC_{90}) and IC_{50} was calculated as %viability/$\log_{conc}$ ratio by non-linear regression and Gompertz equitation using GraphPad Prism 7.0. The tests were performed in triplicated and MIC (IC_{90}) and IC_{50} presented as mean. Compounds **11** and **12** showed antibacterial activity against *S. aureus* and *E. coli* strains with MICs between 33.02 and 104.9 µg/mL while **6** and **8** showed activity only against *S. aureus* with MICs range from 129.7 to 270.3 µg/mL. Compounds **2** and **10** were active only against *E. coli* with MIC values 55.58 and 50.47 µg/mL, respectively. IC_{50} values reveals that compounds **6**, **8** and **11** exhibited strong bactericidal activity against *S. aureus* strain represented as IC_{50}.

References:

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