

# Novel potential synthetic compounds from thiazolidin-4-one for infectious diseases

Incidence and mortality from infectious diseases have increased during the past decade. One of the main reasons is the drug resistance of bacteria, which leads to the appearance of the so-called “superbugs” (i.e., bacteria with extensive or total resistance to commonly used antibiotics). These superbugs, are mostly generated from normal strains of bacteria, including *Pseudomonas aeruginosa* [1], *Helicobacter pylori* [2], and methicillin-resistant *Staphylococcus aureus* (MRSA) [3]. Dangerously, they have spread worldwide, from the USA [4] and Canada [5] to India [6]. Hence, the search for new antibiotics is vital.

In this issue, Pham et al. [7] report the synthesis of 12 new compounds derived from thiazolidin-4-one, followed by evaluation of their antimicrobial activity. Their article, “Antimicrobial activity of some novel 2-(2-iodophenylimino)-5-arylidene-thiazolidin-4-one derivatives”, describes a simple method to synthesize antibacterial molecules with high yields (>50%) for all compounds. The chemical structures of these compounds have been elucidated by the authors using spectroscopic methods, including infrared spectroscopy, mass spectrometry, and nuclear magnetic resonance. Although no compounds show antifungal activity against *Candida albicans* and *Aspergillus niger*, some of them exhibit remarkable antibacterial effects on both *S. aureus* and MRSA, with the minimum inhibitory concentration (MIC) being as low as 4 µg/mL. These compounds can be further studied in terms of their cytotoxicity, using animal tests in vivo, as a prelude to their evaluation in the clinic as candidate drugs for the treatment of infectious diseases.

Although well conducted, there are some limitations to the present work. The synthesis is a multistep process, which makes it difficult for industrial scale-up. Moreover, the types of bacteria tested were limited to 5 strains.

## References

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