

Dual activity compounds for bacterial infections - anti-Quorum Sensing and anti-Inflammatory

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Technology

Prof. Gopas, Prof. Kushmaro and their colleague Rajendran Saravana Kumar (Chemistry Division, School of Advanced Sciences, Vellore Institute of Technology, Chennai, India) examined the activities of plant natural compounds and synthesized derivatives from Pepper (*Piper nigrum*) and Curcumin. To date, conventional antibacterial agents have targeted vital features in the bacteria and have led to selective pressure and the emergence of resistance populations. One feature that seems to be under less selective pressure is the bacterial communication, Quorum Sensing (QS). The main advantages of such QS inhibitors are the avoidance of rapid selective pressures that conventional antibiotics generate and, thus, may provide a possible treatment for existing infections by multi-drug resistance bacteria. Here, the scientists identified around 60 compounds were synthesized and characterized for their toxicity, Quorum sensing inhibition, anti-bacterial activity and NF- κ B inhibition. The compounds that have dual activity, '2 in 1' – anti-bacterial and anti-inflammatory were selected to be examined further. These synthetic molecules may provide a basis for further development of novel therapeutics agents against bacterial infections. PL-18 was found to be one of the promising compounds with inhibition of NF- κ B and Anti-QS effect on *P. aeruginosa*.

Application

Novel compound with dual activity, anti-bacterial and anti-inflammatory, that can be used for various infections that involve *P. aeruginosa*.

Advantages

- Dual activity – anti-bacterial and anti-inflammatory
- Anti-QS, potential can reduce drug resistance
- To the best of our knowledge, no anti-virulence molecules including anti QS inhibitors have been introduced clinically as single agents or in combination with antibiotics
- Derivates from Pepper and Curcumin
- Synthetical generated

Patent

[WO2022/153306A1](#)