# Relocating Glyceryl Trinitrate as an Anti-Virulence Agent against *Pseudomonas aeruginosa* and *Serratia marcescens* :Insights from Molecular and In Vivo Investigations

Authors: **Shaimaa I. Nazeih, Mohamed A. M. Ali, Alyaa S. Abdel Halim, Hanan Al-Lawati, Hisham A. Abbas, Mohammed Al-Zharani, Fehmi Boufahja, Mashael A. Alghamdi, Wael A. H. Hegazy, Noura M. Seleem**

| Publication Year | 2023 | 10.3390/microorganisms11102420 |
|---|---|---|
| Grant Number | | IMSIU-RP23083 |

**Abstract:** The growing issue of antibiotic resistance demands alternative strategies like quorum-sensing (QS) disruption and virulence inhibition, which minimize selective pressure on bacteria, reducing the risk of resistance development. QS plays a key role in bacterial virulence, making its disruption crucial for reducing pathogenicity. This study investigated glyceryl trinitrate (GTN) at sub-inhibitory concentrations (0.25 mg/mL) for inhibiting virulence in *Serratia marcescens* and *Pseudomonas aeruginosa*. GTN significantly reduced virulence gene expression and alleviated liver and kidney tissue damage in infected mice. These findings suggest that GTN, combined with antibiotics, could be an effective topical treatment for infections caused by these bacteria.