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Bioactive Compounds as Bacterial Efflux Pump Inhibitors

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Message from the Guest Editors

Antibiotic resistance is responsible for approximately 700,000 yearly deaths worldwide. Therefore, managing infections caused by resistant bacteria and reducing the associated morbidity and mortality rates currently represent a significant challenge in public healthcare. Efflux pumps (EP) are cell membrane proteins that actively mediate the extrusion of dangerous compounds in various cells. In the context of antibiotic resistance, efflux pump expression stands out for the widespread occurrence among resistant bacterial strains, leading to the lack of effectiveness of a significant number of antibiotics. A large body of research has demonstrated that compounds of either synthetic or natural origin can potentiate the efficacy of conventional antibiotics against EP-overexpressing strains. Therefore, the discovery of bioactive compounds capable of acting as bacterial efflux pump inhibitors represents a promising strategy for combatting antibiotic resistance. Hence, we welcome research demonstrating the effectiveness of fully characterized bioactive compounds as efflux pump inhibitors and their impact on antibiotic resistance, through in vivo, ex vivo in vitro, and in silico testing.



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