Antimicrobial activity of vanillin to the emergence of antimicrobial resistance pathogens in clinical isolates

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Antibiotic resistance is a major public health problem around the world and results in high morbidity and mortality rates in hospital infections. In this study, bacteria causing nosocomial infections were collected and treated with vanillin, a widely used flavor compound in food. These isolates include extended-spectrum beta-lactamases producing Escherichia coli, methicillin-resistant Staphylococcus aureus, imipenem-resistant Acinetobacter baumannii and Pseudomonas aeruginosa. The minimal inhibitory concentration (MIC) of vanillin was then determined by broth microdilution method. Our results showed that the MIC of vanillin against most of aforementioned bacteria species was 1 mg/mL. However, vanillin with MIC of 0.5 mg/mL exhibited anti-Acinetobacter baumannii activity. These findings suggested that clinical isolates of Acinetobacter baumannii were potential susceptible for vanillin. Further investigation on the synergistic effect of vanillin will provide more information for antibiotic usage on infectious diseases.