

## Blue-Light Photoactivation of Berberine-Gentamicin Combination: A Synergistic Strategy Against *Staphylococcus aureus* Acute Wound Infections

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### INTRODUCTION



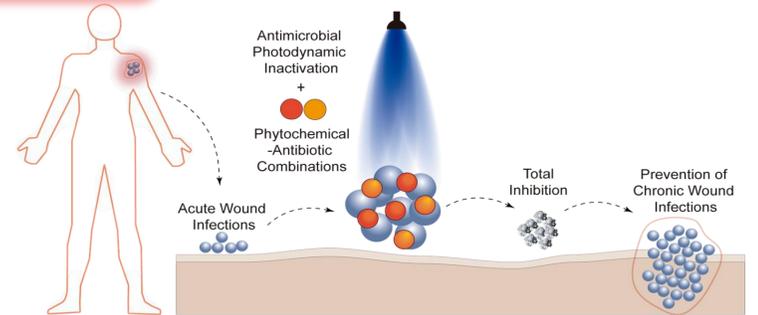
Methicillin-resistant *Staphylococcus aureus* (MRSA) poses a significant challenge in managing acute wound infections due to its high resistance to conventional antibiotics;



The persistence of these infections not only complicates treatment but also increases the likelihood of chronicity;

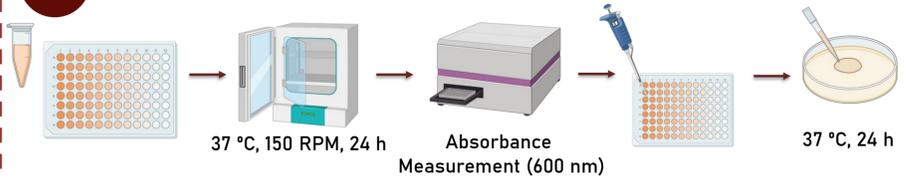


This study investigates the potential of the blue-light photoactivated berberine-gentamicin (Ber-Gen) combination as a novel strategy to enhance bacterial inactivation and overcome antibiotic resistance in a clinical strain of MRSA isolated from a diabetic foot ulcer.

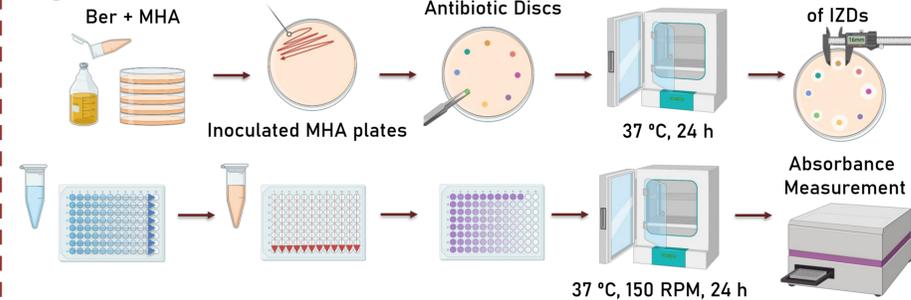


### METHODS

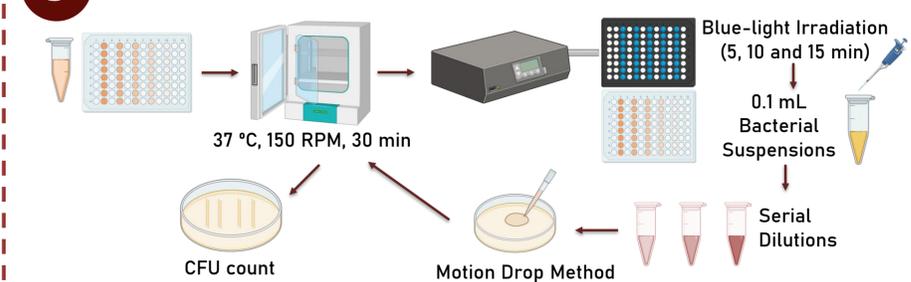
#### 1 MINIMUM INHIBITORY AND BACTERICIDAL CONCENTRATION



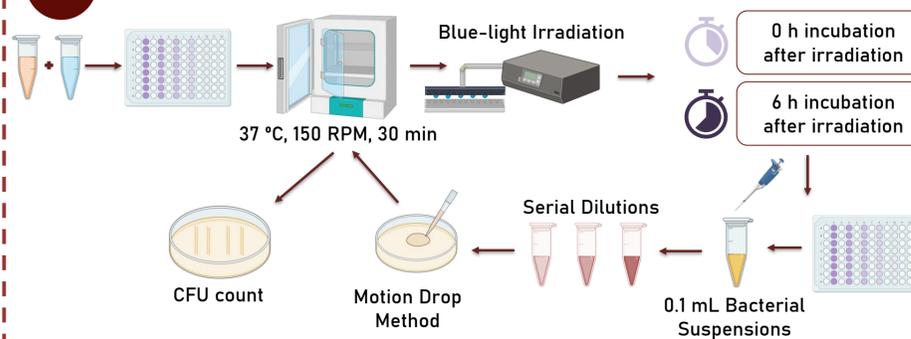
#### 2 BER-GEN COMBINED ANTIBACTERIAL EFFECT: DISC DIFFUSION TEST AND CHECKERBOARD ASSAY



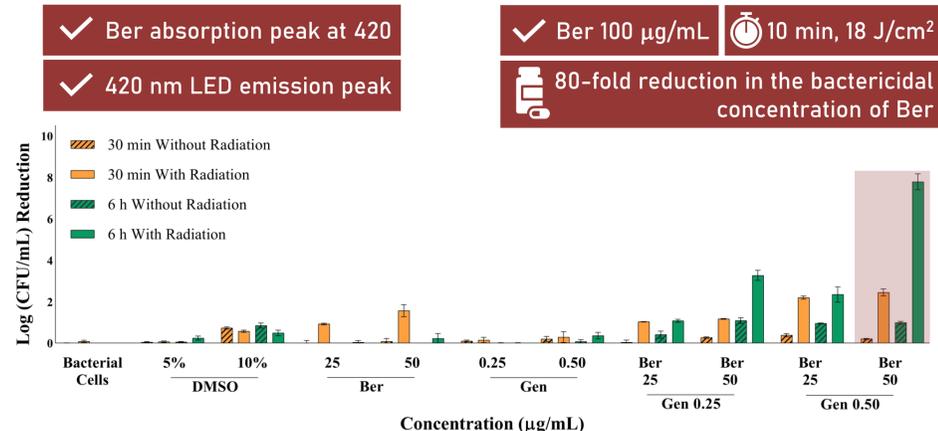
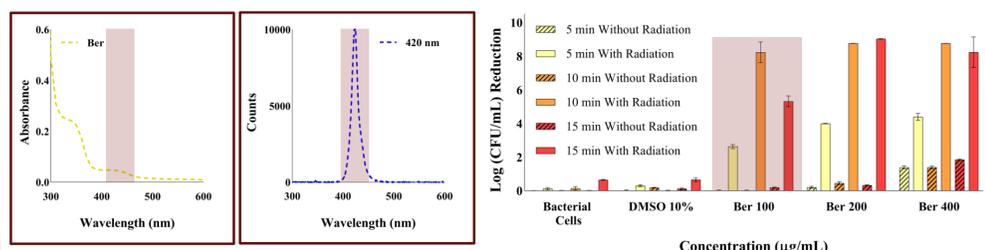
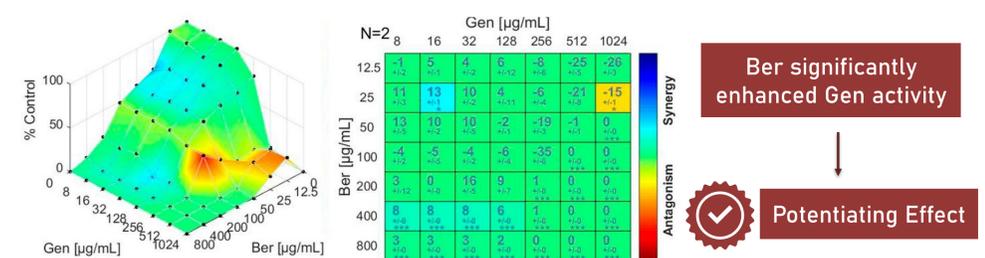
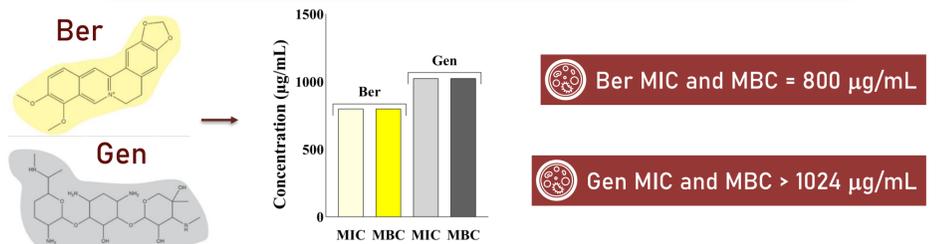
#### 3 BER ANTIBACTERIAL PHOTODYNAMIC ACTIVITY



#### 4 BER-GEN ANTIBACTERIAL PHOTODYNAMIC ACTIVITY



### RESULTS



### CONCLUSION

The combination of antimicrobial photodynamic inactivation with Ber-Gen synergistically reduced the culturability and restored Gen efficacy against MRSA, highlighting a promising strategy against resistant infections.

SCAN TO ACCESS THE FULL RESULTS



### ACKNOWLEDGMENTS

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