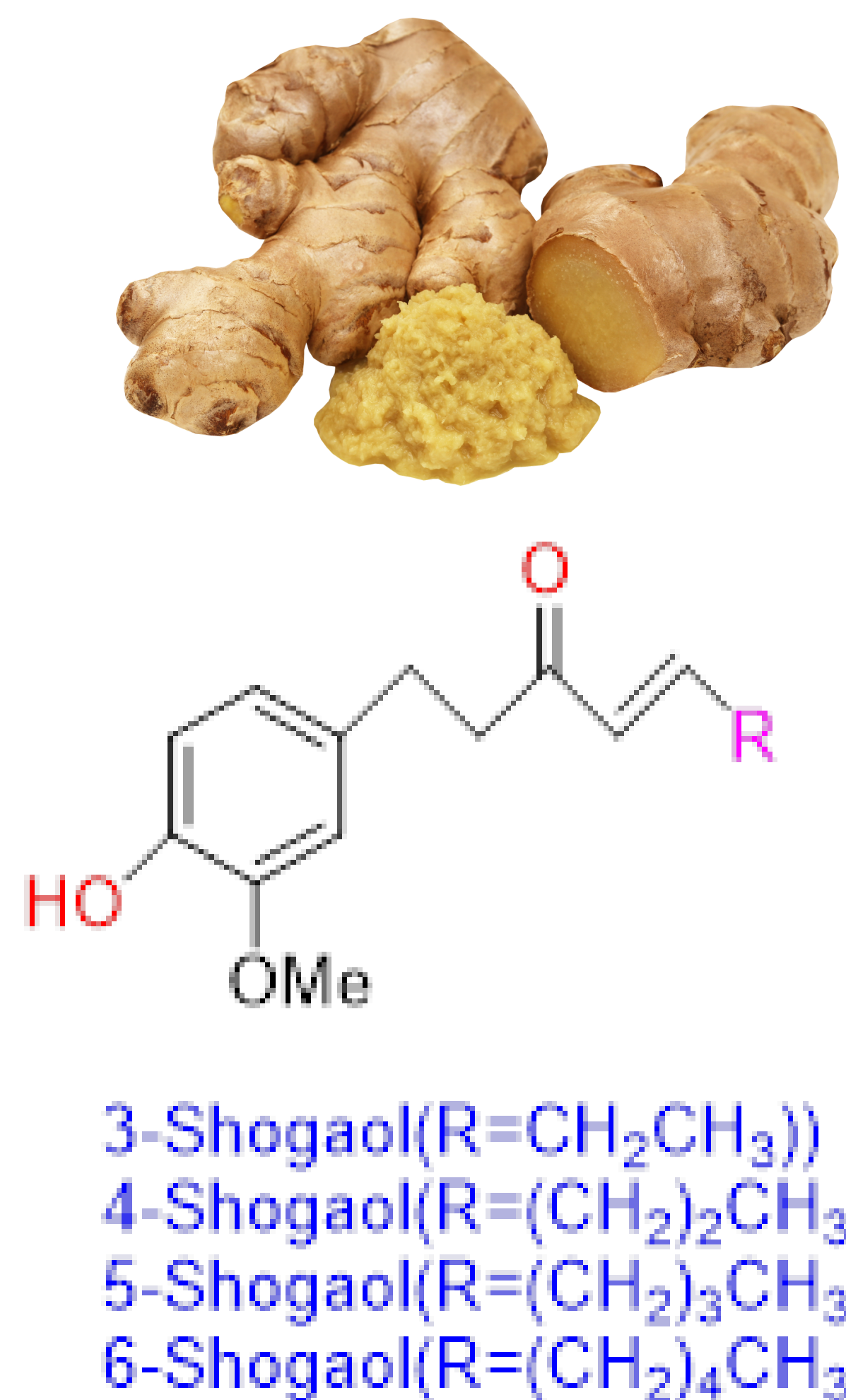


INTRODUCTION

Ginger (*Zingiber officinale* Roscoe), a spice that is grown all over the world, is full of phytochemicals including 6-shogaol. 6-Shogaol is known to exhibit health advantages including anti-bacterial, anti-inflammatory, antioxidant, and antiemetic effects. However, the anti-bacterial properties of shogaol with other alkyl chain lengths are lacking.

RESEARCH OBJECTIVE

Shogaol with various alkyl chain lengths (3,4,5 and -6) was synthesized. Their antibacterial activity against the following bacteria was studied: *Staphylococcus aureus* ATCC43300, *Enterococcus faecalis* ATCC 51299, *Acinetobacter baumannii* ATCC 19606 and *Klebsiella pneumoniae* ATCC BAA 1705.



RESULT AND DISCUSSION

Antimicrobial screening:

250 – 5000 µg/mL, 20 µL loading volume

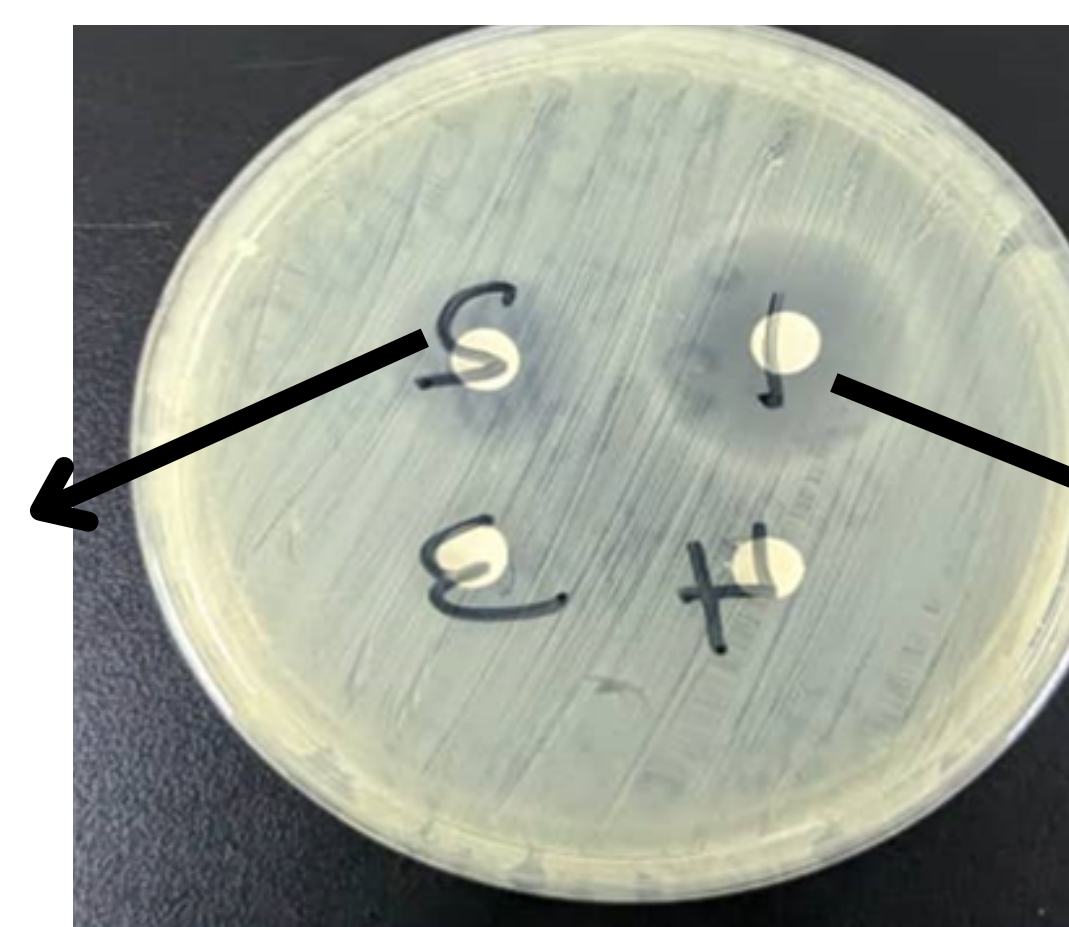
3-shogaol was found to be the most potent, exhibiting zone inhibition with *Staphylococcus aureus*.

Minimum Inhibitory Concentration (MIC):

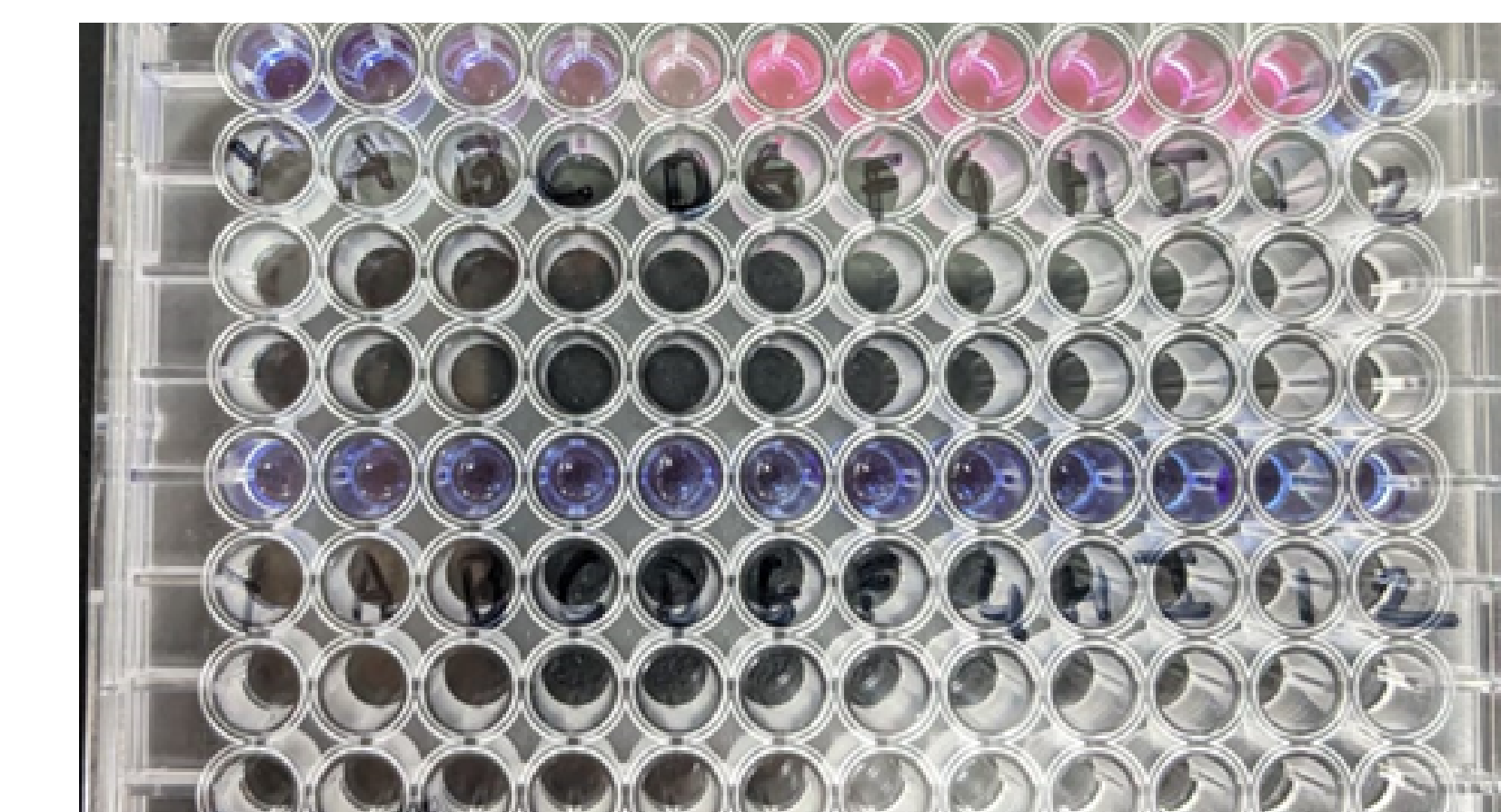
0.25 - 128 µg/mL

Compound	3-shogaol	4-shogaol	5-shogaol	6-shogaol
MIC value for <i>Staphylococcus Aureus</i> (µg/mL)	64	>128	>128	128

Concentration = 1500µg/ml
Zone inhibition = 1.5cm



Concentration = 5000µg/ml
Zone inhibition = 2.1cm



Methodology

Synthesis of shogaol

Characterisation of shogaols

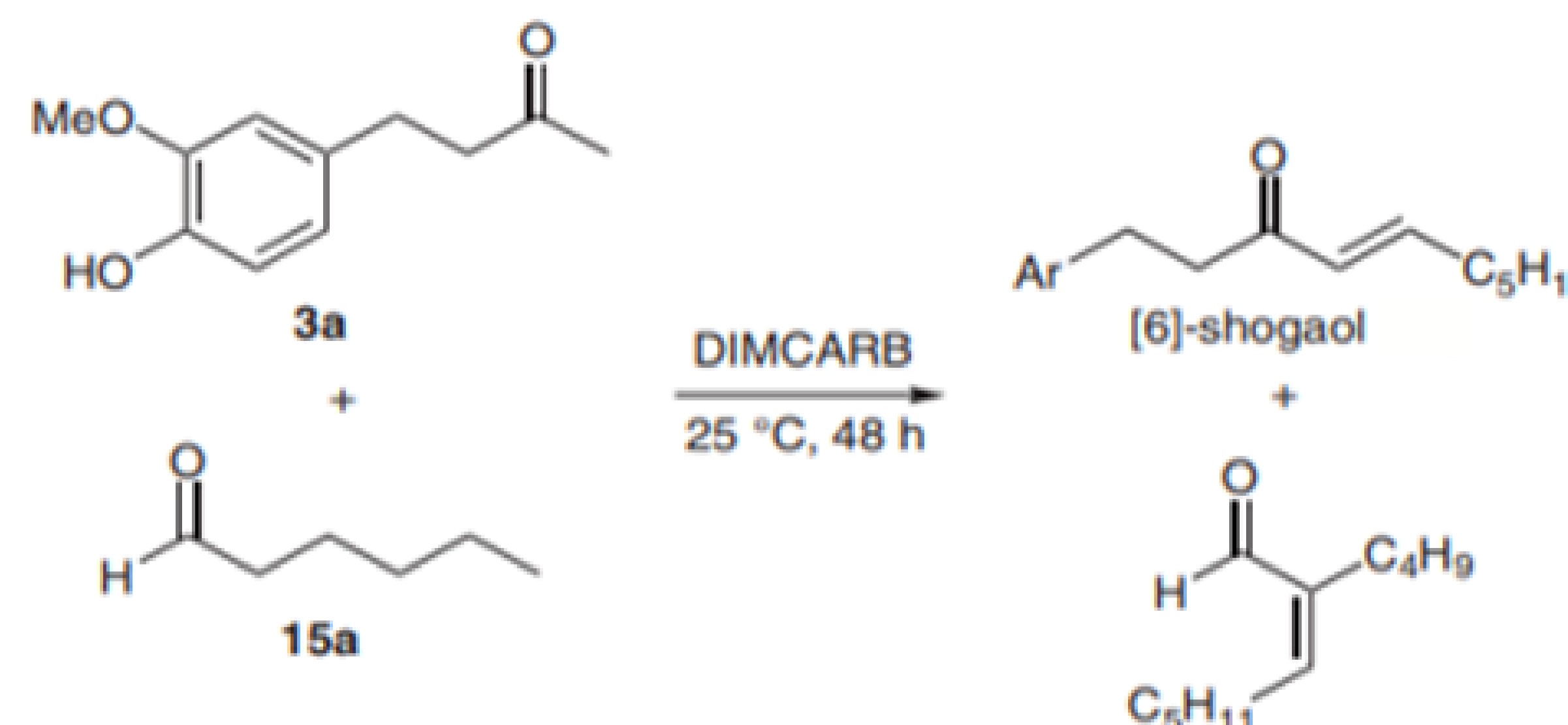
- NMR
- FTIR
- MS

Antimicrobial screening: Disc Diffusion method

Determination of the Minimum Inhibitory Concentration (MIC): Microdilution method using Resazurin (0.02% wt/v)

MECHANISM OF SHOGAOL SYNTHESIS

Illustration : Mannich Type Condensation of Hexanal (15a) with Ketone (3a) using DIMCARB



CONCLUSION

3-shogaol exhibited the most potent antibacterial property against *Staphylococcus aureus* with MIC value of 64 µg/mL.

ACKNOWLEDGEMENT

This project was funded by the International Medical University (IMU) under project ID MAPC I/2023 (02).

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PROJECT TEAM

