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Longan (*Dimocarpus longan*) concrete: bioactive potential against bacterial strains and stored product insects

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Abstract: Longan (*Dimocarpus longan*) concrete was evaluated for antimicrobial and fumigant insecticidal activity. It inhibited all tested bacteria (MIC₅₀: 0.188–2.472 mg/mL) and showed high insect mortality (up to 95.67%). Results support its potential as a natural food protection agent.

Keywords: longan concrete; antimicrobial; insecticidal

•Introduction

Longan is rich in polyphenolic compounds associated with biological activity. However, its concrete remains poorly explored.

•Material and method

Disc diffusion, MIC (6 bacteria).
Fumigation assay (*C. maculatus*, *M. dorsalis*).

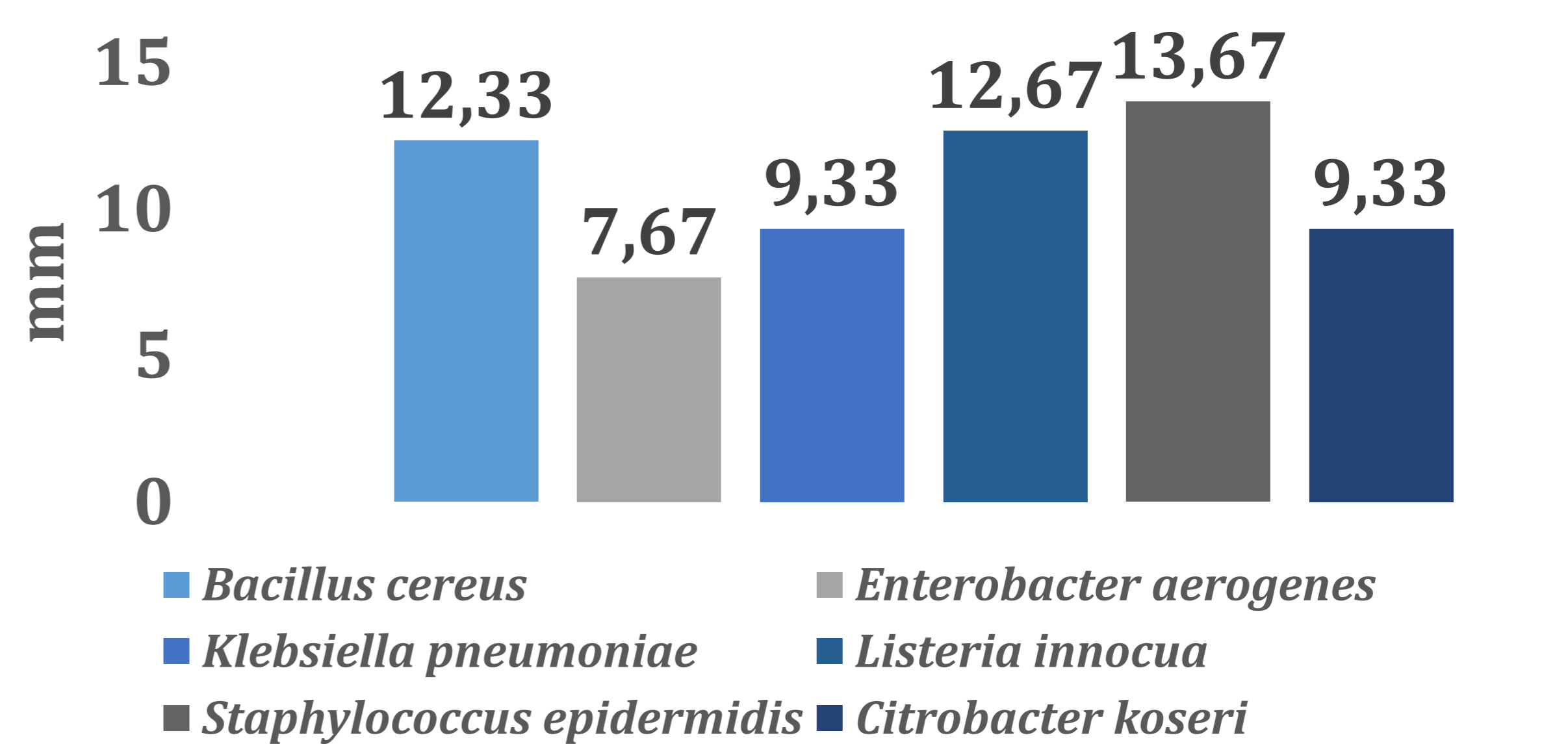
•Conclusions

Longan concrete exhibited notable antimicrobial activity, particularly against Gram-positive bacteria, as well as significant insecticidal effects against both tested beetle species. These findings suggest its potential as a natural alternative for the protection of stored food commodities.

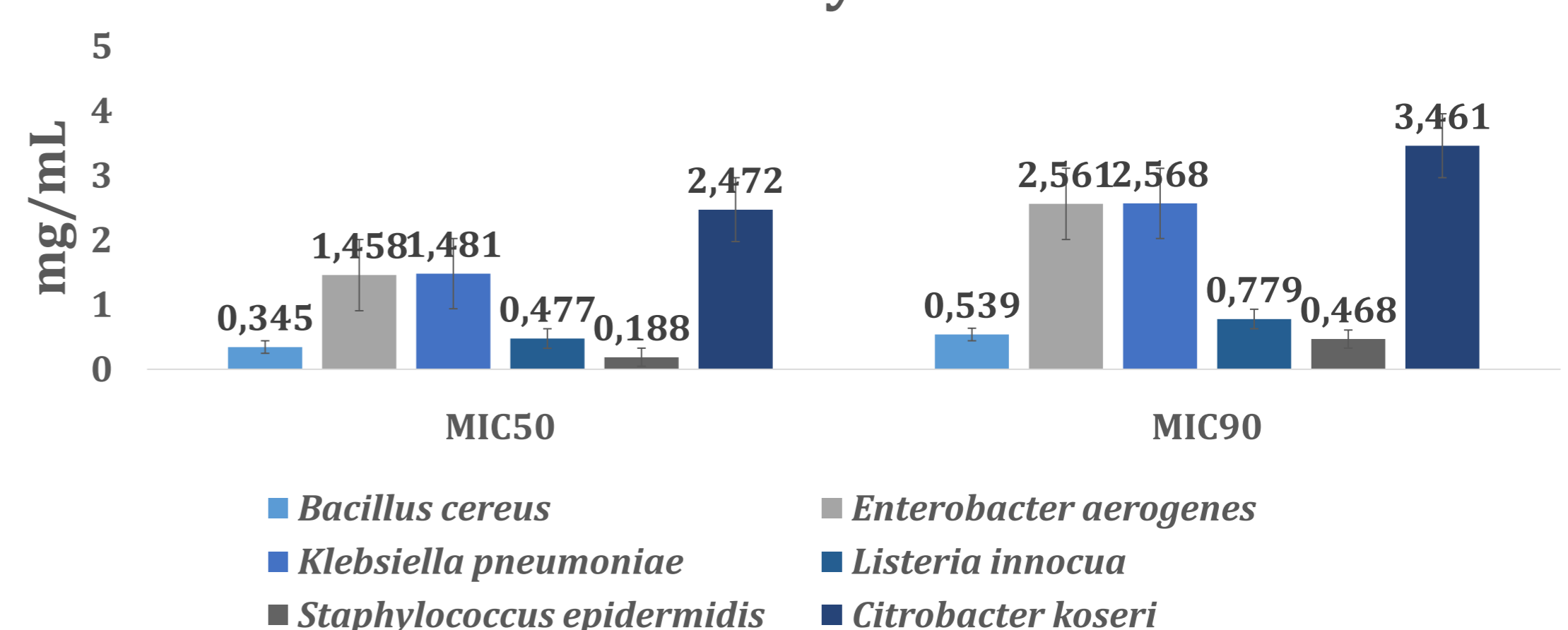
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•Results and discussions

Antimicrobial activity with disc diffusion method



Minimum inhibitory concentrations



Fumigant insecticidal activity of longan

Concentration (%)	<i>C. maculatus</i> Mortality (%) Mean	<i>M. dorsalis</i> Mortality (%) Mean
100	95.67 ± 5.77 ^a	88.67 ± 10.50 ^a
50	76.00 ± 2.65 ^b	76.00 ± 2.65 ^b
25	56.00 ± 1.73 ^c	56.33 ± 1.53 ^c
12.5	32.67 ± 1.53 ^d	31.67 ± 2.08 ^d
6.25	21.33 ± 4.04 ^e	21.33 ± 4.04 ^d
3.125	8.67 ± 2.08 ^f	9.00 ± 1.73 ^e