







# Gut microbiota-supporting beverage: Kombucha's activity against Gram-positive bacteria

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#### Introduction & aim

Fermented foods have been rapidly gaining popularity recently due to their use in medicine and dietetics. Kombucha a fermented beverage containing numerous probiotic bacteria and their metabolites, which have beneficial effects on the digestive system. The purpose of this study was to determine the antimicrobial activity of kombucha containing probiotic strains against bacteria that cause gastrointestinal diseases.

## Method

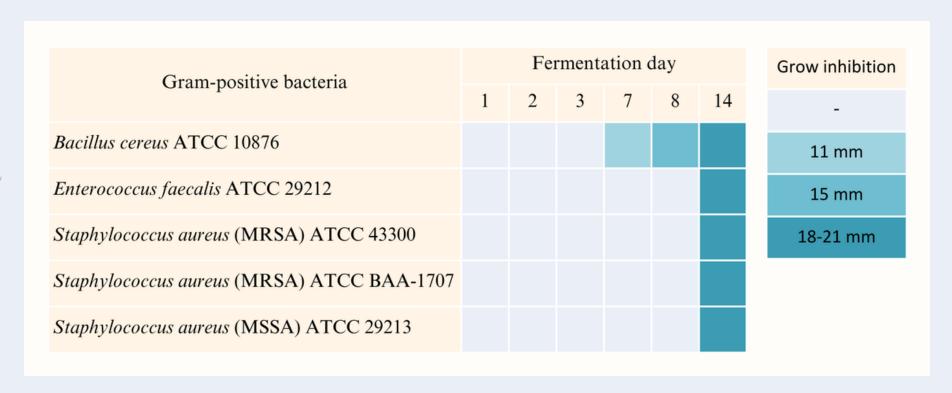
The activity of kombucha was tested before fermentation and during fermentation on days 1, 2, 3, 7, 8, and 14 against reference strains of Gram-positive bacteria from the American Type Culture Collection (ATCC) such as methicillin-sensitive Staphylococcus aureus (MSSA) ATCC 29213, two methicillin-resistant Staphylococcus aureus (MRSA) strains (ATCC 43300 and ATCC BAA-1707), Bacillus cereus ATCC 10876, and Enterococcus faecalis ATCC 29212. The well-diffusion method was used for this assessment, and the antimicrobial activity of this beverage was evaluated by the zone of growth inhibition (mm) around the kombucha well.



#### Results

The highest activity was observed after 14 days of kombucha fermentation against almost all tested bacteria with a zone of growth inhibition of 18-21 mm.

The highest activity was observed against *S.* aureus ATCC 29213 and S. aureus ATCC 43300.



### Conclusion

These data show that kombucha is a beverage that can support the treatment of food poisoning caused pathogenic by microorganisms such as methicillin-sensitive S. aureus (MRSA), methicillin-resistant S. aureus (MRSA), B. cereus, and E. faecalis.

## References

C. D. Barbosa; W. C. R. Santos; E. C. Costa; I. M. Costa; V. O. Alvarenga; I. C. A. Lacerda, Evaluation of antibacterial activity of black and green tea kombucha, Scienta Plena, VOL. 18, NUM. 9, 2022

Oktay Tomar, Determination of some quality properties and antimicrobial activities of kombucha tea prepared with different berries, Turkish Journal of Agriculture and Forestry, Volume 47, Number 2, Article 12, 1-1-2023