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Inhibitory activity of crude bacteriocin produced by lactic acid bacteria isolated from dadih against listeria monocytogenes (Article)

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Abstract

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The use of natural preservatives called bacteriocin derived from lactic acid bacteria (LAB) is one way of preventing food from being contaminated by pathogenic microorganisms such as Listeria monocytogenes (LM). The aims of this study were to evaluate the ability of LAB isolated from dadih to inhibit the growth of LM and to obtain the antimicrobial components that play a role in inhibiting the growth of LM. The antimicrobial activity of the supernatant obtained from 12 strains of dadih LAB was determined using the paper disk diffusion method. The results showed that the supernatant from the 12 LAB strains was able to inhibit the growth of LM with various inhibition zones. However, out of the 12 LABs, only 9 strains were found to have an inhibition zone of more than 3.5 mm. The antimicrobial compounds of 9 strains were tested and it was found that the antimicrobial compounds of strains R-8, R-14 and R-49 were derived from lactic acid. In addition, 6 strains namely R-43, R-32, R-19, R-55, R-45 and R-41 were derived from bacteriocin based on their sensitivity to pH, heat and enzyme treatments. Crude bacteriocin derived from 6 LAB strains inhibited the growth of LM, and the highest antimicrobial activity was obtained in Streptococcus faecalis subsp. liquefaciens R-55 with an average inhibition zone of 13.87 mm. Bacteriocin produced by strain R-55 can be used as natural preservatives for the prevention of food-borne disease caused by LM.

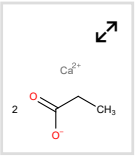
SciVal Topic Prominence

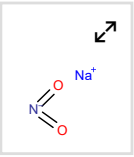
Topic: Bacteriocins | Lactobacillales | Biopreservatives

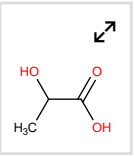
Prominence percentile: 97.289

Chemistry database information

Substances







Author keywords

Antimicrobial activity | Bacteriocin | Lactic acid bacteria | Listeria monocytogenes | Preservative compound

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