

Applications of Antibacterial Substances Produced by LAB from Fermented Metata Ayib

Alazar Essayas

Sharda University, India

Recently, there have been increases in antibiotic resistant strains of human pathogens, threats effectiveness of currently applicable drugs and significantly causing treatment failure of microbial infections. These days more attention is given to searching new antimicrobial drugs to combat the war against pathogenic microbes. Traditional fermented cottage of Metata Ayib that contains lactic acid bacteria (LAB) may have antimicrobial activity against various human pathogens to preserve Ayib for a long time. However, there was no scientific report on the antimicrobial activity of lactic acid bacteria isolated from Metata Ayib. Therefore, the objective of this study was to evaluate lactic acid bacteria from Metata Ayib and study antibacterial activity against clinical and standard human pathogens. The study was laboratory based experiment conducted from October to June 2014. Antibiotic production by the LAB was performed by inoculating the LAB isolates into 6.0 ml MRS medium and incubating at 30 °C. Cell free supernatants (CFS) were collected by centrifugation (10,000 rpm for 15 min at 4 °C) of the six day fermented broth cultures. The pH of the CFS was adjusted to 6.5 with 4 N NaOH to eliminate the effect of organic acids. The susceptibility of produced antibiotic against test organisms was done by growing on Muller Hinton agar in triplicate using well diffusion method and the inhibition zone was recorded. Preceddingly, MIC and MBC were determined using standard methods. The antibiotic substance was shown antimicrobial activity towards standard and drug resistant bacterial strains with the inhibition zone ranges upto 25.33±3.21 mm. The result of MIC against tested ornaishms was shown a considerable antimicrobial activity of the antibiotic substance withn the range values 6.25% to 12.5%. In addition, the result of this study was shown that LAB obtained from Metata Ayib exhibits antimicrobial activity against standard and pathogenic pathogenic test bacterial species ranged from 12.5-25% of MBC value. This might be due to the production of organic acids, but also other compounds, such as ethanol, hydrogen peroxide, diacetyl, reuterin and bacteriocins. The results of this investigation can also provide baseline for information for future studies about the application of antibacterial substances produced by LAB from fermented Metata ayib.

Biography:

Alazar Essayas, a young PhD student in Sharda University, India. He was a lecturer in Wollo University, Dessie, Ethiopia before joining the PhD class .He got my MSc degree in biotechnology and bachelor degree in applied biology from governmental university, University of Gondar. Now he is doing PhD in Industrial biotechnology from one of Indian prestigious university, Sharda University. MSc thesis was on, antibacterial activity of lactic acid bacteria from Metata ayib (traditional fermented cheese) which triggers him to continue his study on industrial biotechnology.