## Antibacterial Effect of Probiotic Bacterial Strains Isolated from Locally Fermented and Commercial Products

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Probiotic bacteria boost health by fighting pathogens and regulating immunity. Many strains are derived from various sources like fermented foods and dietary supplements. To combat antimicrobial resistance in disease prevention, probioticbased approaches are vital. This study aimed to investigate the antagonistic effect of locally and commercially available probiotic bacteria against bovine pathogens. Fermented coconut water and rice water prepared in the laboratory, curd, and five probiotic products from the market were cultured on De Man Rogosa Sharpe (MRS) agar to obtain lactic acid bacteria (LAB). The resulting colonies were morphologically examined, Gram stained and evaluated for inhibition of bovine mastitis pathogens including *Escherichia coli* (n = 3) *Staphylococci spp* (n = 2), and two reference cultures of E. coli and S. aureus, using modified disk diffusion method. All obtained colonies were Gram-positive yielding both Gram-positive cocci and bacilli. Bacilli were isolated from rice water whereas both bacilli and cocci were detected from curd. Fermented coconut water comprised of cocci bacteria as similar to the commercial probiotic products. One LAB strain from fermented coconut water and two bacterial strains, one coccus and one bacillus from a curd sample showed inhibition zones of 17mm-23mm, 14mm, and 15mm respectively against the tested bovine pathogens. However, bacteria isolated from the probiotic tablets did not show inhibition zones against the pathogens. This is the first report on fermented coconut water LAB inhibiting bovine mastitis pathogens. In conclusion, the local LAB from environmental sources is more effective against indigenous bovine pathogens compared to market products. These can be used to reduce disease incidence. Additional testing is in progress to identify the species of LAB. Further studies are recommended to produce effective probiotic formulations for use in livestock farming.

Keywords: Antibacterial, Bovine, Fermented, Lactic Acid Bacteria, Probiotic bacteria

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