

In vitro Investigation of Preventive Effects of Normal Vaginal Lactobacillus on Isolated Bacteria of Uterine Infections in Dairy Cows

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Introduction

Uterine infections are one of the major reproductive complications during postpartum. The antibiotics and antiseptic agents used in the treatment of postpartum infections can pose risk of residues in food, induce bacterial resistance, and increase financial cost and failure in defense mechanisms. Nowadays probiotics are frequently used for multiple purposes in humans and animals. Preventive treatment with probiotic products could decrease the use of antibiotics on dairy farms. The objective of this study was to compare the antagonistic properties of isolated vaginal lactic acid bacteria (LAB) against the most prevalent bacteria in uterine infections.

Materials and Methods

LAB were isolated from vaginal sampling during estrus and non-estrus periods of Holstein dairy cattle, and pathogens were isolated from metritis and endometritis specimens referred to our veterinary laboratory. Antagonistic characteristics of isolated LAB was

tested by Agar spot test. Antibiotic susceptibilities of pathogenic strains to commonly used antibiotics were investigated by using disc diffusion method.

Results

Isolated LAB had antagonistic effects against all the pathogenic strains including both gram negative and gram positive bacteria. *Arcanobacterium pyogenes* were the most sensitive bacteria (with 14 mm an average inhibition zone) and LAB had the least antagonistic effect on *Clostridium perfringens* (3.6 mm of an average inhibition zone) that was recorded as negative.

Significance

Bovine vaginal lactobacilli strains have different antagonistic characteristics against isolated pathogens; our recorded inhibition zones varied from 0 to 18 mm. These results may be applied in future studies to design probiotic products to prevent uterine infections in dairy postpartum cows.