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Probiotics as a novel treatment of mastitis in dairy goats to combat a nutritional concern

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Background: The demand for goat dairy products has grown in the US and continues to increase. This is partially due to nutritional advantages that include higher protein, lower cholesterol, ease in digestibility and low fat content as compared to cows' milk. Goat milk is also used in a variety of health and beauty products such as lotions, soaps and creams. Mastitis continues to have a negative impact on the supply of and demand for goat milk as well as contributing to lack of financial gains for farmers.

Methods: Faculty and graduate students of Department of Veterinary Science and Public Health at Fort Valley State University are conducting research both *in vitro* and *in vivo* to determine if mastitis may be prevented and/or treated with probiotics. To demonstrate that probiotics will be an effective alternative to traditional antibiotic therapy in treatment of mastitis in dairy goats, antibiotic-resistant bacteria will be treated *in vitro* with *Lactobacillus sp.* probiotics to determine bacterial susceptibility. This study has two phases. In Phase I, bacteria isolated from milk from goats with mastitis is subjected to Kirby-Bauer testing to ascertain antibiotic resistance. Once resistance is observed, bacterial sub-colonies will then be subjected to treatment with probiotics (*L. plantarum*, *B. subtilis*, *B. licheniformis*, *S. cerevisiae*). Phase II involves treatment of antibiotic resistant mastitis in dairy goats to treat and prevent mastitis.

Results: Results are pending completion of all testing, to be reported in 2017.

Conclusions: Mastitis, an inflammatory process involving the mammary glands, has a negative effect on milk production which in turn influences the supply of and demand for goat milk products. Probiotics present the possibility of a novel treatment in the treatment of antibiotic resistant mastitis.

Key Words: probiotic, dairy, goat, antibiotic, resistance

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