"UPTAKE OF CHOLESTEROL BY CELLS OF LACTOBACILLUS ACIDOPHILUS"

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A portion of our research project on the use of Lactobacillus acidophilus as a dietary adjunct is concerned with the possible influence of this organism on serum cholesterol levels. In preliminary experiments using test tube cultures, a strain of L. acidophilus of human origin absorbed or incorporated cholesterol from the growth medium. This phenomenon occurred only when proper conditions were provided during growth of the organism. These conditions included the presence of bile salts, anerobic condition, and incubation at 37 C. Examination of strains of L. acidophilus isolated from other sources including intestines of calves and pigs have confirmed this capability of the organism. As with certain other characteristics of microbial cultures, the ability to remove cholesterol from the growth medium varies among strains of L. acidophilus. The variation appears, at least in part, to be related to variations in bile tolerance of the organism.

The next stage of the study will involve a feeding trial using four to five week old pigs as a test model. The strain of L. acidophilus used in the feeding trial will be one which has been isolated from the intestines of pig and which exhibits a high level of activity with regard to removing cholesterol from growth medium in test tube cultures. The objective of the feeding trial will be to determine if inclusion of this organism in the diet will result in reductions in serum cholesterol level.

The conditions required for the organism to exert this action on cholesterol in test tube cultures would exist in the intestinal tract. Therefore, it is reasonable to assume that a similar type of action should occur in the intestinal tract. If such action does occur, the inclusion of L. acidophilus as a dietary adjunct may provide a benefit to those individuals who normally exhibit elevated levels of serum cholesterol.

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