EDITORIAL

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Growth, acid production, bile tolerance and adherence to columnar epithelial cells of four species of bifidobacteria.

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Abstract: Four types of bifidobacteria were read for development, corrosive creation; bile acids resistance and adherence to sheep epithelial cells were studied. The species examined were *Bifidobacterium longum* ATCC 15707, *B. bifidum* ATCC 2203, *B. angulatum* ATCC 2238 and *B. breve* ATCC 2258 were tested for growth and environmental conditions. The log phase of B.longum and B.angulatum were found to plan 14 hours phase whereas the log phase of the opposite two species were found to plan 17 hours of inoculation. Both B. longum and B. angulatum reduced the pH faster than both B. bifidum and B. breve. B. longum had the very best growth and B. breve had rock bottom rate of growth. All the studied species exhibited a point of bile tolerance. B. longum and B. bifium were more immune to bile acids than the opposite two species. Adhesion of the four species to the columnar epithelial cells of the tiny intestine of sheep was studied.All the tested species showed some degree of adhesion; however, *B. longum* adhered to the epithelial cells more than other three species.

Bifidobacteria were found to be predominant bacteria in the intestinal flora of breast fed infants. It has been found that, there is a specific relationship between human milk oligosaccharides grown bifidobacteria and intestinal epithelial cells. The growth of bifidobacteria on human milk oligosaccharides enhances epithelial binding and can induce anti-inflammatory response tin the intestinal epithelial cells. The human intestine is sterile at birth but then rapidly colonized by bacteria. Bifidobacteria are among the first bacterial colonizers of the intestine of neonates Intestinal micro flora is a highly active society of microorganisms, processing a diverse complex of enzymes that perform extremely varied functions. So the balance between beneficial bacteria and the harmful ones plays a crucial role in maintaining not only the intestinal health, but also the overall health of the individual. Probiotics are defined as live microorganisms that when administered in adequate amounts, confer a health benefit in the host.

Probiotics improve intestinal microbial balance as a mean of infection control. Probiotics are microorganisms selected mostlyfrom bacteria that form a part of the normal intestinal micro flora of humans. Bifidobacteria have been used as probiotics in humans, they are used in food, supplied as dietary supplement, or as active component of registered medication these bacteria, should not only be capable of surviving passage through the digestive tract by tolerating acid and bile, but should also have the ability to proliferate in the gut. They are increasingly recognized as potential bacteria with advantage properties, they contribute to digestion, immunity promotion, and production of vitamins cholesterol lowering and inhibition of pathogens. A large number of products mostly are dairy origin products containing bifidobacteria are produced worldwide. Different species of bifidobacteria were able to grow in six different types of milk. Strains belonging to the genus Bifidobacterium are seldom found in food products. Recently there are incorporated in yoghurt manufacture along with yoghurt starter and production of probiotic cheese, because of their health and therapeutic benefits. Bifidobacteria are nutritionally fastidious microorganisms that require specific growth factors as only a limited number of these bacteria can grow in minimal culture conditions. The ability to the adhere of bifidobacteria to the intestinal epithelium cells play an important role in gut colonization as it prevents the peristaltic elimination of bacteria and providing a competitive advantage in this ecosystem.

Bacterial adhesion to intestinal epithelial cells: Adhesion of bifidobacteria to columnar epithelial cells sheep was carried out using the procdure of . Adhesion was tested by examining the slides under the light microscopy of Gram stained samples. Comparison of adhesion between species was studied by noticing the number of bacterial cells attached to the columnar epithelial cells (concentration of bacteria on epithelial cells).

Results: The relationship between growth of bifidobacteria and certain environmental conditions such as acid production, acid tolerance and reduction in the redox potential was investigated in this study. Growth and acid production were quite different among the Bifidobacterium Species examined in this study. The log phase of both B. infant is and B. longum was found to be after 10 h post-inoculation, whereas the log phase of B. angulatum and B. breve were found to be after 14hrs of inoculation. The difference of pattern of growth probably due to the difference in β- galactosidase system Adhesion ability of bifidobacteria to epithelial cells is considered one of the most important characteristics for use as probiotic bacteria. Adhesion of bifidobacteria to columnar epithelial cells of the small intestine of sheep was examined.