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Fermented Milks as Health Promoters

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Introduction

Fermented milk play important role in Dairy. It proves to be beneficial for health any many ways. Fermented milk plays a useful role in preventing the gastrointestinal infections which cause diarrhoea. Studies have shown that fermented milks suppress tumour growth in animals and decrease chances of cancer. There is dearth of direct human studies. Therefore, it is too premature to make claims about the healthy attributes of fermented milks. Great interest exists in the research, commercial and consuming communities on the health effects of lactic acid bacteria. The term "lactic acid bacteria" applies to a functional grouping of friendly bacteria (non-pathogenic) that produce lactic acid and are traditionally used in food fermentation. Re- search has been conducted on both bacterial types and the food products that harbour these bacteria. Greater attention has, however, been paid to fermented milk and milk products such as yoghurt, buttermilk, dahi, etc. Since antiquity fermented, milk is supposed to have health-giving and vitalising powers. According to a Persian legend, the ability and longevity of Abraham was due to yoghurt, and that French King, Francis I is said to have been cured of an illness by yoghurt made from ewe's milk. Metchnikoff, a famous scientist attributed the longevity of Bulgarian and Caucasian farmers to their habit of consuming large quantities of fermented milk products. Although this hypothesis was popular at the beginning of this century it was unsupported by clinical or experimental proof. Remarkable developments in techniques for microbiological research in recent years have produced data showing the important role played by the lactic acid bacteria leading to a fresh reassessment of Metchnikoff's hypothesis. A large range of opinions exists among experts. This article will examine of the literature that supports or negates lactic cultures as promoters of human health.

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Promotion of Digestion

The constituents of milk are broken down in fermentation by lactic acid bacteria leading to in- creased efficiencies of utilisation of protein, calcium, iron and phosphorus, etc. The lactic acid bacteria produce organic acids such as lactic acid, hydrogen peroxide, bacteriocins (nisin, lactocidin, acidolin etc.) and breakdown bile acids to improve the intestinal microflora and create an environment for the efficient utilisation of nutrients. Thenutritional and physiological value of a food can be judged by making observations on the increase in body weight in new born or actively growing young animals. Yoghurt feeding has been observed to give higher weight gain in rats as com- pared to milk acidified by direct acidification or unfermented yoghurt mix of the same fat and milk solids content. The growth promoting effect has been attributed to the cells of Streptococcus salivarius ssp. thermo-philus spherical bacteria used in yoghurt fermentation.

Lactose Digestion

A large portion of the world's population is deficient in the intestinal lactose digesting enzyme, lactase. Failure to digest lactose leads to it's presence in the large intestine, providing a fermentation substrate for colonic flora. Symptoms include bloating, gassiness, cramps and diarrhoea. The condition of lactose in- tolerance can be physiologically determined in a subject by providing a measured dose of lactose with subsequent monitoring of hydrogen (a by-product of colonic fermentation of lactose) excreted in the breath. Studies on human subjects have provided convincing evidence that yoghurt consumption leads to a significant

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decrease in breath hydrogen excretion and lactose intolerance symptoms. For effective results high levels of viable lactic bacteria (5 to 10 x 107/ml.) must be present in the final product. The lactic bacteria themselves provide the lactase enzyme which helps in the digestion of lactose.

Antagonism to Infectious Bacteria

Fermented milks can prevent or atleast reduce the severity of various gastro-intestinal infections that cause diarrhoea. The friendly lactic bacteria colonize on our gut mucosa and disrupt colonies of bad bacteria. These lactic bacteria produce certain antibacterial proteins termed "bacteriocins" which decrease or kill harmful bacteria and as a result suppress the production of harmful substances like amines, phenols, indole and hydrogen sulphide produced by the harmful bacteria. However, most trials on human patients have not given statistically significant effect and there is still not a preponderance of evidence to support a general beneficial effect.

Cancer suppression

Fermented milk products results indicating suppression of tumour growth in animal models, a decrease in incidence of cancer, and a decrease of mutagenicity have been reported in a number of studies using fermented milks or viable cells of lactic acid bacteria. Transplanted tumours like Sarcoma 180 and Ehrlich ascities are suppressed in rats fed lactobacilli, but the degree of suppression differs among species and strains. Epidemiological studies indicate that components in fermented milks may reduce the risk of colon cancer. Since intestinal bacteria have been postulated to play an important role in conversion of chemical procarcinogens in the gut, their activity has been used to monitor colon carcinogenesis. It has been suggested that lactobacilli inhibit carcinogenesis in these systems by a) inactivating or inhibiting formation of carcinogenic compounds in the intestinal tract or b) suppressing promotion or c) enhancement of the immune properties of the host. However, the situation is not clear at present as most studies remain confined to the animal models and these models have their inherent deficiencies as predictors of human responses. Further research in this area can help in obtaining a clear picture.

Lowering Blood Cholesterol

It was discovered in 1974 that the Masai warriors of Africa drank large amounts of a fermented milk, and therefore had very low levels of blood serum cholesterol. Since then, a

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number of studies have approached this issue empirically. However, there is no consensus in the reported human clinical studies to support a substantive positive effect.

Conclusion

Although a large number of reports have been published, only a few seem to contribute convineingly to our knowledge of health effects of fermented milks on humans. Parameters for control of lactose intolerance symptoms like consumption of a fermented product with a particular level of viable lactic bacteria could be expected to be efficacious. Feeding certain strains of lactobacilli can be expected to decrease faecal enzymes that may be involved in colon cancer. Some indications exist that fermented milks with particular lactic strains may have an anti-diarrhoeal effect. The lack of direct human studies on certain aspects like anticancer effects suggests that it is premature to make these claims. Recent research advances suggest that legitimate health attributes can be attributed to specific lactic strains and hence promoters of the commercial products must consider the effectiveness of the specific strain being used and its efficacious levels, and only then these can contribute to overall health and well-being of consumers.