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Probiotic dahi containing *Lactobacillus acidophilus* and *Bifidobacterium bifidum* suppresses immunoglobulins-E levels through cytokine modulation in whey proteins-induced allegy mouse model

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The present study was carried out to evalaute the effect of feeding probiotic Dahi on whey proteins (WP) allergenicity in mice. Probiotic Dahi were prepared by co-culturing in buffalo milk (3% fat) Dahi bacteria (*Lactococcus lactis* ssp. cremoris NCDC-86 and *Lactococcus lactis* ssp. *lactis* biovar *diacetylactis* NCDC- 60) along with selected strain of *Lactobacillus acidophilus* LaVK2 (La-Dahi) or combined L. acidophilus and *Bifidobacterium bifidum* BbVK3 (LaBb-Dahi). Four groups of mice (8 each) were fed with the supplements (5 g/day) of buffalo milk (3% fat), Dahi, La-Dahi and LaBb-Dahi from 7 days before sensitization with WP (20µg/200µl PBS), respectively, in addition to milk protein-free basal diet, and a fifth group that received no supplements served as control. Feeding of probiotic Dahi suppressed the elevation of whey proteins-specific IgE and IgG response in serum of WP-sensitized mice. In addition, sIgA levels were significantly ($p<0.001$) increased in intestinal fluid collected from mice fed with La-Dahi or LaBb-Dahi. Production of T helper (Th)-1 cell-specific cytokines, i.e. interferon-γ (IFN-γ), interleukin (IL)-12, and IL-10 increased, while Th2-specific cytokines, i.e. IL-4 decreased in the supernatant of cultured splenocytes collected from mice fed with probiotic Dahi compared to the other groups. Moreover, the splenic mRNA levels of IFN-γ, interleukin-10 were found to be significantly increased, while that of IL-4 decreased significantly in La-Dahi or LaBb-Dahi groups, as compared to control groups. Taken together, these results indicate that administration of La-Dahi and LaBb-Dahi might be useful for prevention of milk proteins allergy.

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