Kefir extracts suppress in vitro proliferation of estrogen-dependent human breast cancer cells but not normal mammary epithelial cells.

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Abstract

Anti-tumorigenic effects have been demonstrated in animal studies from the intake of kefir, a traditional fermented milk product believed to originate from the Caucasian mountains of Russia. In the present study, the antiproliferative effects of extracts of kefir, yogurt, and pasteurized cow's milk on human mammary cancer cells (MCF-7) and normal human mammary epithelial cells (HMECs) was investigated at doses of 0.31%, 0.63%, 1.25%, 2.5%, 5%, and 10% (vol/vol). After 6 days of culture, extracts of kefir-fermented milk depressed MCF-7 cell growth in a dose-dependent manner, showing 29% inhibition of proliferation at a concentration as low as 0.63%, whereas yogurt extracts began to show dose-dependent antiproliferative effects only at the 2.5% dose. Moreover, at the 2.5% dose, kefir extracts decreased the MCF-7 cell numbers by 56%, while yogurt extracts decreased MCF-7 cell proliferation by only 14%. No antiproliferative effects of kefir extracts were observed in the HMECs, while the yogurt extracts exerted antiproliferative effects on HMECs at the 5% and 10% doses. Unfermented milk extracts stimulated proliferation of MCF-7 cells and HMECs at concentrations above 0.31%. Peptide content and capillary electrophoresis analyses showed that kefir-mediated milk fermentation led to an increase in peptide concentrations and a change in peptide profiles relative to milk or yogurt. The present findings suggest that kefir extracts contain constituents that specifically inhibit the growth of human breast cancer cells, which might eventually be useful in the prevention or treatment of breast cancer.

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