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Deterination of antioxidative properties of kefir made with traditional methods

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The aim of this study is to determine the antioxidant capacity of kefir, which is one of the traditional fermented foods and known to have positive effects on health, by comparing it with vitamin E, which has known anti-oxidative effects. Dietary components of antioxidant vitamins and other nutrients may play an important role in protecting the body against oxidative damage. In this regard, vitamin E is a powerful antioxidant.

In recent years, the increase in studies advocating that a diet supplemented with probiotics is a healthier diet, the increase in intestinal diseases due to the consumption of additives has lead to a rapid increase in the number of people in understanding the importance of probiotic nutritional support for a healthy life. Fermented dairy products with various therapeutic properties have long been an important part of the human diet (Panesar, 2011). Consumption of foods produced with probiotic microorganisms, especially for a healthy life, is of great importance for many organs, especially intestinal flora. It has been reported that probiotics provide improvement in many other functions through their metabolic effects such as immune system modulation and antioxidant (Granato, 2010). It has been clinically showed that some diseases related to the gastrointestinal tract, such as lactose intolerance, diarrhoea, colon cancer, inflammatory bowel disease, and other bacterial infections, can be prevented by consuming probiotics (Shah, 2013).

Due to the claimed health benefits of kefir which include the reduction of lactose intolerance symptoms, stimulation of the immune system, lowering cholesterol, anti-mutagenic and anti-carcinogenic properties and Anti-oxidative effect kefir has become an essential functional dairy food and consequently, research on kefir has increased in the past decade( ).

In the majority of the articles were in the direction of the antimicrobial, anti-mutagenic, anti-carcinogenic, anti-cholesterol emic, anti-inflammatory effects of robiotics, and with these effects, it was concluded that they reduced tha stress responses by neutralizing reactive oxygen species by increasing plasma antioxidant levels by reducing the symptoms of diseases(Güven et al.20).

Material Method: Three-week-old Swiss Albino mice weighing 22-26 g were used for the experiment. The animals were allowed to sham-treated for 15 days and randomly assorted into the following groups:

Group I (n:10): Animals were sham-treated with 2 ml/kg distileled water through oral gavage, Daily for 7 weeks; this group of animals served as the control.

Group II (n:10): Animals were treated with 1.5 ml/kg body weight(b.w) CCl4 disolved in 1.5 ml distilled water through oral avage, Daily for 7 weeks.

Group III (n:10): Animals were treated with 1.5 ml/kg body weight(b.w) CCl4 +30 ml/kg b.w kefirthrough oral gavage, daily for 7 weeks.

Group IV (n:10): Animals were treated with 1.5 ml/kg body weight(b.w) CCl4 +250 mg-1 kg bw vitamin E (DL α-tocopherol acetate) oral gavage, daily for 7 weeks.

Preparation of kefir: microbiological and biochemical analyzes were performed on kefir obtained under traditional conditions.

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At the end of the microbiological analysis of kefir, the averages of the microbial analysis of kefir, and the averages of total mesophilic aerobic colonies, lactic acid bacteria, lactic streptococci, enterococci, and yeasts were determined.

After 7 weeks of exposure, all of the groups were killed under chloroform anesthesia and their livers and kidneys were immediately excised. Lipid peroxidation in tissues was measured. In addition, GSH, GSH-Px, CAT, and GST levels were measured in tissues.

Conclusion & Significance: This study was conducted to compare the protective effect of kefir against oxidative damage of CCl4 in mice with the well-known antioxidant vitamin E.

As a result, it was found that the protective antioxidant effects of kefir is higher than vitamin E by comparing the GSH-Px, GST, CAT, GSH, and LOP values. This is probably the first study to compare the antioxidant effect of kefir and vitamin E in an animal model and will serve as a reference for all future studies. Based on this information, it can be stated that the nutritional elements of KEFIR, which has immune modulator and anti-oxidant properties, may be effective in the treatment of oxidative damage.

Biography

Aysel Guven has nearly 100 national and international publications on antioxidants, lipid peroxidation, probiotics, nanocomposites in the field of biochemistry. Güven, who is an international book editor with books on the subject, is married and has 3 children. Currently working as a faculty member at Başkent University, Güven has a patent and many oral presentations.