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Effects of greek pomegranate extracts in the antioxidant properties and storage stability of kefir

Background: Oxidation reactions it is known that shorten the shelf life and cause damage to foods rich in fat, such as dairy products. One way to limit oxidation and increase the shelf life of fermented dairy products is to use natural antioxidants. The aim of this study was to examine the effect of adding pomegranate extracts in the antioxidant properties, rheological characteristics and the storage stability of the fermented product of kefir.

Method: The pomegranate juice (PGJ) and peel extracts (PGPE) (5%, 10% w/v) were added to kefir and the antioxidant properties were evaluated by using the methods of radical scavenging activity (DPPH) and ferric reducing antioxidant power activity (FRAP). Spectrophotometric and instrumental methods were used to determine the total phenols (TPs), pH values, viscosity and flow behavioral index values of enriched with pomegranate kefir samples. The same properties were tested when kefir samples stored at 4°C for 7, 14, 21 and 28 days.

Results: The addition of PGJ and PGPE results in an increase in the antioxidant activity (DPPH, FRAP) and total phenol content (TPs) of kefir samples. Increasing the concentration of the added PGJ and PGPE, results in an increase in the TP content and the DPPH activity of kefir. As far as the storage time is concerned, the results showed an increase in the amount of TP at 7th day and a reduction in the DPPH activity in the 14th day of storage. In contrary to the DPPH method, the increase in storage time has resulted in a reduction in antioxidant activity by the FRAP method. The addition of PGJ and PGPE in kefir, results in a decrease in pH values while the pH of kefir samples increased during storage at 4°C for 28 days. The addition of PGJ and PGPE to kefir samples results to a decrease in viscosity and an increase in the flow behavior index. Increasing storage time results in increased flow behavior index of kefir samples.

Conclusion: The addition of PGJ and PGPE increased the antioxidant activity and total phenols of the kefir product and preserve its properties during the total storage time of 28 days at 4°C.

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Biography

Vasiliki Lagouri BA MSc PhD received her three degrees from the Aristotle University of Thessaloniki and National and Kapodistrian University of Athens, Greece. She has research and academic experience (1992-2018) at the Chemistry Department of Aristotle University of Thessaloniki, Food Technology Department in Technological Educational Institute of Thessaloniki, Department of Organic Chemistry, Faculty of Chemistry and her current Postdoc position is in the Department of Pharmacognosy and Chemistry of Natural Products, Faculty of Pharmacy, School of Health Sciences at National and Kapodistrian University of Athens. She has over 30 of publications in International Journals, Conference

Proceedings and 2 Book chapter authorships in food chemistry, natural antioxidants, and olive oil and olives as functional foods (number of citations more than 400). She has research experience on experimental designs and applications of different methods to study the chemistry of natural sources, the isolation, identification, and quantification of biologically active polar and non-polar compounds. She offered her services as a reviewer for the Journals: International Journal of Food properties, Journal of the Science of Food and Agriculture, Central European Journal of Chemistry, Separation Science and Technology, Natural Products Research, Nutrients, Molecules. She is a member of the American Chemical Society, Society Free-Radical Research-Europe (SFRR-E), Oxygen Club of California (OCC), ISEKI-Food Association: European Association for Integrating Food Science and Engineering Knowledge Into the Food Chain and the Greek Chemist's Union and she is included in Who's Who of America.

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