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Production methods, scientific studies and problems related to shalgam which is a lactic acid fermented beverage

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Daily foods, which are essential for human life, consist of various products that have different origins and process types. Among them, products that are based on fermentation have a different and important place. Shalgam produced by the lactic acid fermentation is one of those products and a red colored, cloudy and sour soft beverage. In the production of shalgam, roots of black carrots (*Daucus carota*), turnip (*Brassica rapa* L.), rock-salt, sourdough, bulgur flour, and adequate drinkable water are used. Although shalgam is mainly produced and consumed in Adana, Mersin, Osmaniye, Hatay, Icel and Kahramanmaras cities, the most common region are the Adana and surrounding districts. In those regions, shalgam marketed in open containers or in sealed bottles and plastic containers is found almost everywhere with regard to food and drinks. At least, it is loved as much as other drinks and consumption has reached significant amount. In recent years, it has begun to be consumed almost every parts of Turkey, especially Istanbul, Ankara and Izmir cities; however, especially in the cities where the densities of the Turks in Europe have also taken place in the market. In this article, the production methods of shalgam, of which the production is increasing rapidly in recent years, scientific studies on shalgam and problems with regard to shalgam in industry will be discussed.

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Effect of encapsulated and non-encapsulated *Terminalia arjuna* supplementation on antioxidant activity and physicochemical characteristics of vanilla chocolate dairy drink

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Terminalia arjuna (TA), an important medicinal plant listed in ayurveda, is specifically recognized for its recuperative effect on heart ailments. In this study, effect of supplementation (0.3%) of non-encapsulated (Drink 1) and encapsulated (Drink 2) alcoholic extracts of TA on physicochemical and antioxidative properties of flavored dairy drinks was evaluated. The respective dairy drinks were optimized using response surface methodology to improve the sensory appeal. Supplementation of TA extracts resulted in higher antioxidant activity (by ABTS and DPPH methods) of both the dairy drinks when compared to their controls. Addition of free herb has resulted in significantly ($p < 0.05$) higher antioxidant activity of drink 1 when compared to its encapsulated counterpart i.e. drink 2. Total carbohydrate content of Drink 2 ($13.662 \pm 0.263\%$) is significantly ($p < 0.05$) higher than the remaining drinks, which is due to the presence of gum Arabic and maltodextrin used as coating materials for encapsulation of herb. Drink 2 also obtained higher viscosity (15.376 ± 0.398 cP) than the remaining samples. Drink 1 has obtained lowest pH value and more phenolic content thereby higher sedimentation value when compared to the remaining samples. Control 1 without any added TA extract and lesser amount of cocoa powder has obtained significantly ($p < 0.05$) higher lightness (L^*) value (55.64 ± 0.242). Due to the characteristic red color imparted by the presence of free TA extract, Drink 1 has obtained higher redness (a^*) value (10.65 ± 0.05).

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