عنوان مقاله:

Effects of sugar beet fiber and inulin on viability of Bifidobacterium bifidum and physicochemical and sensory properties of red grape juice

محل انتشار:

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خلاصه مقاله:

Background and objective: Dietary fibers are of prebiotic compounds which can increase viability of probiotic microorganisms in food products during storage and have healthful effects on the consumers. The aim of this study was to investigate the effect of different concentrations of inulin and sugar beet fiber on physicochemical and organoleptic properties of red grape juice and their stimulatory impact on viability of Bifidobacterium bifidum in the beverage. Materials and methods: Amounts of ۰.۷, ۱.۴, and ۲.۱% w/v sugar beet fiber and ۱, ۲ and ۳% w/v inulin were added to red grape juice inoculated with ۱۰۸ CFU/ml Bifidobacterium bifidum. Viability of Bifidobacterium bifidum by enumeration on MRS agar, colorimetric evaluation, and study of sensory attributes by ۵-points hedonic test were done on days ۰, ۵, ۱۰, ۱۵, ۲۰, and ۲۵. Moreover, pH and brix were determined during the storage time. Results and conclusion: By increasing the concentration of inulin and sugar beet fiber, brix and pH of red grape juice increased and decreased, respectively. After ۲۵ days of storage, the highest survival (۷.۰۵ log CFU/ml) was observed in the treatment containing ۳% w/v inulin and ۲.۱% w/v sugar beet fiber and the least survival (۵.۰۳ log CFU/ml) was observed in control. Number of probiotic in all the treatments containing dietary fiber was higher than ۱۰۶ CFU/ml after ۲۵ days of storage, but lower than ۱۰۶ CFU/ml was enumerated in control. The highest brightness and the least redness and yellowness was observed in control. By increasing the concentration of inulin above ۱% w/v and sugar beet fiber above ۱.۴% w/v, palatability of grape juice samples decreased significantly. Therefore, red grape juice fortified with ۱.۴% w/v sugar beet fiber and ۱% w/v inulin is a desirable beverage which can support survival of probiotic bacteria within the recommended range.

کلمات کلیدی:

Bifidobacterium bifidum, Inulin, Probiotic, Red grape juice, Sugar beet fiber