Effective clarification of pomegranate juice: A comparative study of pretreatment methods and their influence on ultrafiltration flux

The aim of this study was to introduce an effective pre-clarification step in order to improve performance of subsequent ultrafiltration (UF) and to obtain a high quality pomegranate juice (PJ) with improved clarity. The effects of various pre-clarification treatments utilizing gelatin, bentonite and polyvinyl polypyrrolidone (PVPP) on UF performance were evaluated comparatively through analysis of flux behavior and membrane fouling. Quality attributes of the PJs (pH, total acidity, total phenolic content, total monomeric anthocyanins, individual phenolic acids, organic acids, total antioxidant activity and color characteristics) following various pre-clarification treatments were also investigated. On the whole, pre-clarification treatments that included PVPP exhibited a higher overall adsorption capacity, especially of low molecular weight phenolics. The best results with regard to both the fouling behavior of the UF membrane and the juice clarity were achieved by sequential application of PVPP and bentonite. Since lesser amounts of fining agents were used in the pre-clarification treatments, quality attributes of PJ were well preserved comparing conventional clarification applications [Pelin Onsekizoglu Bagci* (Trakya University, Department of Food Engineering, 22180 Edirne, Turkey), Journal of Food Engineering, 2014, 141, 58–64].

Impact of sugar-sweetened beverages on blood pressure

The impact of sugar-sweetened beverages (SSBs) on blood pressure (BP) has been debated, with some evidence suggesting that their increased intake is related to higher risk of developing hypertension. We conducted a systematic review exploring the relation between consumption of SSB and BP. A comprehensive search in 5 electronic databases along with a bibliography search was performed. The keywords “sugar sweetened beverages,” “sugary drinks,” “added sugars,” “blood pressure,” and “hypertension” were indexed in all combinations. Studies were included that reported the effects of intake of SSBs on BP. We excluded studies with <100 subjects and those involving subjects aged <12 years. Of 605 potentially relevant studies, a total of 12 studies (409,707 participants) met our inclusion criteria; 6 were cross sectional studies, whereas the rest were prospective cohort studies. All 12 studies showed positive relation between increased SSB intake and hypertension; however, statistical significance was reported in 10 of these studies. Of the 12 studies, 5 reported an increase in mean BP whereas 7 reported an increase in the incidence of high BP. In conclusion, our systematic review shows that the consumption of SSBs is associated with higher BP, leading to increased incidence of hypertension. Restriction on SSB consumption should be incorporated in the recommendations of lifestyle modifications for the treatment of hypertension. Interventions to reduce intake of SSBs should be an integral part of public health strategy to reduce the incidence of hypertension [Aaqib Habib Malik* (Yale University, United States), Yasir Akram, Suchith Shetty, Senada Senda Malik and Valentine Yanchou Njike), American Journal of Cardiology, 2014, 113 (9), 1574-1580].

Shelf-life evaluation of natural antimicrobials for Concord and Niagara grape juices

This study was conducted to evaluate the effectiveness of natural antimicrobials for shelf-life extension of cold-filled still and carbonated Concord and Niagara grape juices, which have
traditionally been preserved with chemical preservatives. Commercial juices were inoculated with a spoilage yeast cocktail of Dekkera, Kluveromyces, Brettanomyces, and Zygosaccharomyces at $10^2$ and $10^3$ CFU/ml. The following agents were added to still juices: no preservative (negative control), 0.05% potassium sorbate plus 0.05% sodium benzoate (positive control), 0.1 or 0.2% cultured dextrose, 250 ppm of dimethyl dicarbonate (DMDC), 10 or 20 ppm of natamycin, and 250 ppm of DMDC plus 5 or 10 ppm of natamycin. Carbonated juice was treated with the negative control, positive control, and 250 ppm of DMDC plus 10 ppm of natamycin. Microbial stability of samples was assessed every 2 weeks during 6 months of storage at 21°C by yeast enumeration and measurement of turbidity, pH, and Brix. Juices were deemed spoiled when yeast counts exceeded $10^6$ CFU/ml. Cultured dextrose was not effective at levels tested in both types of juice. The most promising results were obtained with DMDC and natamycin combination treatments in still Niagara juice and in carbonated Concord and Niagara juices. In these treatments, shelf-life extension similar to that of the positive control (153 to 161 days) was achieved while maintaining similar turbidity, pH, and °Brix. Spoiled juices had lower pH and °Brix values and higher turbidity due to microbial activity and increased in microbial levels [Siricururatana, P.*, Iyer, M. M.; Manns, D. C., Churey, J. J., Worobo, R. W. and Padilla-Zakour, O. (Department of Food Science, Cornell University, New York State Agricultural Experiment Station, Geneva, New York 14456, USA), *Journal of Food Protection, 2013, No. 1(January), 72-78].

**NPARR 5(1), 2014-04 Amounts of artificial food colors in commonly consumed beverages and potential behavioral implications for consumption in children**

Artificial food colors (AFCs) are widely used to color foods and beverages. The amount of AFCs the Food and Drug Administration has certified over the years has increased more than 5-fold since 1950 (12 mg/capita/day) to 2012 (68 mg/capita/day). In the past 38 years, there have been studies of adverse behavioral reactions such as hyperactivity in children to double-blind challenges with AFCs. Studies that used 50 mg or more of AFCs as the challenge showed a greater negative effect on more children than those which used less. The study reported here is the first to quantify the amounts of AFCs in foods (specifically in beverages) commonly consumed by children in the United States. Consumption data for all foods would be helpful in the design of more challenge studies. The data summarized here should help clinicians advise parents about AFCs and beverage consumption [Laura J. Stevens*, John R. Burgess, Mateusz A. Stochelski and Thomas Kuczek (Laura J. Stevens, Nutrition Science Department, Purdue University, 700 W. State Street (G-46), West Lafayette, IN 47907, USA), *Clin Pediatr April 24, 2014].