

Effect of Two Different Method for Juice Processing on the Anthocyanins and Polyphenolics of Blueberry (*Vaccinium corymbosum*)

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Abstract : Blueberry (*Vaccinium corymbosum*, bluegold) has become popular beverage due to their nutritional values such as vitamins, minerals, and antioxidants. In the study, the effects of pressing, mashing, enzymatic treatment, and pasteurization on anthocyanins, colour, and polyphenolics of blueberry juice (BJ) were studied. The blueberry juice (BJ) was produced with two different methods that direct juice extraction (DJE) and mash treatment process (MTP) were applied. After crude blueberry juice (CBJ) production, the samples were first treated with commercial enzymes [Novoferm-61 (Novozymes A/S) (2-10 mL/L)], to break down the hydrocolloid polysaccharides, mainly pectin and starch. The enzymes were added at various concentrations. The highest transmittance (%) was obtained for Novoferm-61 at a concentration of 2 mL/L was 66.53%. After enzymatic treatment, clarification trials were applied to the enzymatically treated BJs with adding various amounts of bentonite (10%, w/v), gelatin (1%, w/v) and kiselsol (15%, v/v). The turbidities of the clarified samples were then determined. However, there was no significant differences between transmittances (%) for samples. For that, only enzymatic treatment was applied to the blueberry juice processing (DDBJ, depectinized direct blueberry juice). Based on initial pressing process made to evaluate press function, it was determined that pressing fresh blueberries with no other processing did not render adequate juice due to lack of liquefaction. Therefore, the blueberries were mash into small pieces (3 mm) and then enzymatic treatments and clarification trials were performed. Finally, both BJ samples were pasteurized. Compositional analyses, colour properties, polyphenols and antioxidant properties were compared. Enzymatic treatment caused significant reductions in ACN content (30%) in Direct Blueberry Juice Processing (DBJ), while there was a significant increasing in Mash Treatment Processing (MTP). Overall anthocyanin levels were higher intreated samples after each processing step in MTP samples, but polyphenolic levels were slightly higher for both processes (DBJ and MTP). There was a reduction for ACNs and polyphenolics only after pasteurization. It has a result that the methods for tried to blueberry juice is suitable into obtain fresh juice. In addition, we examined fruit juice during processing stages; anthocyanin, phenolic substance content and antioxidant activity are higher, and yield is higher in fruit juice compared to DBJ method in MTP method, the MTP method should be preferred in processing juice of blueberry into fruit juice.

Keywords : anthocyanins, blueberry, depectinization, polyphenols

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