

Comparative Study of Stability of Crude and Purified Red Pigments of Pokeberry (*Phytolacca Americana* L.) Fruits

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Abstract : Recently, there is an increased interest in the development of food natural colorants as alternatives to synthetic dyes because of both legislative action and consumer concern. Betalains are widely used in the food industry as an alternative of synthetic colorants. The interest of betalains are caused not only by their coloring effect but also by their beneficial properties. The aim of the work was to study of stability of crude and purified red pigments of pokeberry (*Phytolacca americana* L.). The pokeberry fruit juice was filtrated and concentrated by rotary vacuum evaporator up to 25% and the concentrated juice was passed through the Sepadex-25(fine) column (20×1.1 cm). From the column the pigment elution rate was 18 ml/hr. 1.5ml fractions of pigment were collected. In the fractions the coloring substances were determined using $\text{CuSO}_4 \times 7 \text{H}_2\text{O}$ as a standard. From the Sephadex G-25 column only one fraction of the betalain red pigment was eluted with the absorption maximum at 538 nm. The degree of pigment purification was 1.6 and pigment yield from the column was 15 %. It was shown that thermostability of pokeberry fruit red pigment was significantly decreased after the purification. For example, during incubation at 100°C for 10 min crude pigment retained 98 % of its color while under the same conditions only 72% of the color of purified pigment was retained. The purified pigment was found to be characterized by less storage stability too. The storage of the initial crude juice and the pigment fraction obtained after the gelfiltration for 10 days at 4°C showed the lost of color by 29 and 74 % respectively. From the results obtained, it can be concluded that during the gelfiltration the pokeberry fruit red pigment gets separated from such substances that cause its stabilization in the crude juice.

Keywords : betalains, gelfiltration, pokeberry fruit, stability

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