



Stability of Cyaniding-Derivatives in Homemade Raspberry Jams

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High-performance liquid chromatography with diode array detection (HPLC-DAD) was used to study the stability of individual anthocyanins during preparation of homemade raspberry sugar jam and sugar-low jam at high temperatures (90, 95, 100 and 105 °C).

Acidified methanol was used for anthocyanin extraction. Several derivatives of cyanidin, were identified: cyanidin-3-sophoroside (cy-3-soph), cyanidin-3-glucoside (cy-3-glu) and cyanidin-3-rutinoside (cy-3-ru). Cy-3-soph was the most abundant, followed by cy-3-glu and cy-3-ru. The lowest loss of cy-3-soph, cy-3-glu and cy-3-ru was measured after 5 minutes of cooking at 90°C, yielding 35.6%, 38.4% and 29.6% in sugar jam and 13.4%, 24.6% and 11.7% in sugar-low jam. The greatest loss of cy-3-soph, cy-3-glu and cy-3-ru was observed after 30 minutes of cooking at 105 °C, yielding 74.5%, 81.1% and 71.7% in sugar jam and 44.2%, 55.1% and 42.6% in sugar-low jam. Apparently, the presence of larger amount of sugar had negative effect on stability of anthocyanins in raspberry jam. Anthocyanins exhibited greater stability towards thermal degradation in sugar-low jam. Cy-3-soph and cy-3-ru have shown relatively equable stability in sugar-low jam. Cy-3-glu was the least stable in both jam types.

Obtained results are in accordance with literature data where cy-3-soph has been identified as the most stable pigment in raspberry juice and wine, while cy-3-glu was the least stable and the most reactive pigment, which undergoes polymerization faster than all other anthocyanins¹.

Keywords: cyanidin, raspberry, HPLC, jam.

References

1. Rommel, A.; Heatherbell, D.A.; Wrolstad, R.E. Red Raspberry Juice and Wine: Effect of Processing and Storage on Anthocyanin Pigment Composition, Color and Appearance, *J. Food Sci.* **1990**, 55(4), 1011-1017. DOI 10.1111/j.1365-2621.1990.tb01586.x