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Investigation of changes in anthocyanins during sulfite treatment

Carol Pow Sang, Harmit Singh, Yee Teng Moo and **Lauren Chuman**
California State Polytechnic University, USA

The use of anthocyanins (ACNs) as natural food colors in various products is limited due to their heat sensitivity as well reactivity with other molecules such as sulfites. ACNs react with sulfite and lose their bright color due to the formation of reversible ACNs-sulfite complex. Understanding the variability in the reaction of sulfites and ACNs from various sources such as fruits and vegetables will help in the selection of appropriate sources and successful application of ACNs in food products. This study was designed to investigate the formation of ACNs-sulfite complex from various commercial natural food color samples such as red cabbage (RC), grape juice concentrate (GJ), grape skin (GS), and elderberry (EB). The samples were prepared at pH 3.0 with various concentration of sulfite solution (100 uL) at a final solution concentration of 0.02%. Quantitative estimation of percentage of color or total ACNs left after sulfite treatment was analyzed by spectrophotometry absorption at 520 nm and total area under peaks in RP-HPLC chromatogram. The results indicated a significant loss of color in GJ and GS samples analyzed by both methods. Analysis through spectrophotometer showed a higher percentage of color left in GJ (18%) and GS (12%) whereas; RC and EB showed only 1% of color left after sulfite treatment. Meanwhile, HPLC data showed less concentration of color left in GJ (5%) and GS (10%) after treatment with sulfites. The results suggested that GJ and GS ACNs are less reactive to sulfites as compared to EB and RC colors.

Biography

Carol Pow Sang is currently working as a graduate Research Assistant at California State Polytechnic University.

littlewagon@hotmail.com

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