

Vibrational and electronic spectroscopic detection and quantification of carminic acid in candies

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Carminic acid (CA) contained in one kind of gummy candy was detected and quantified by using vibrational and electronic spectroscopy, respectively; the proposed methodology in solution is simple and rapid without sample pretreatment as usually used and reported. The identification of CA in candies was performed through the Raman and surface enhanced Raman scattering (SERS) spectra along with the equivalent spectral data from the natural CA dye. A modified silver colloidal solution was used in order to obtain SERS activity of CA at very low concentration in colloidal aqueous solution. Theoretical calculations allow infer about both the CA/silver surface interaction nature and on the orientation of CA on the surface. The electronic spectroscopic (UV-Vis) data allowed quantify CA in candies; the amount resulted nearly identical to that determined from HPLC traditional measurements. The present results should contribute to the health of children consumers.