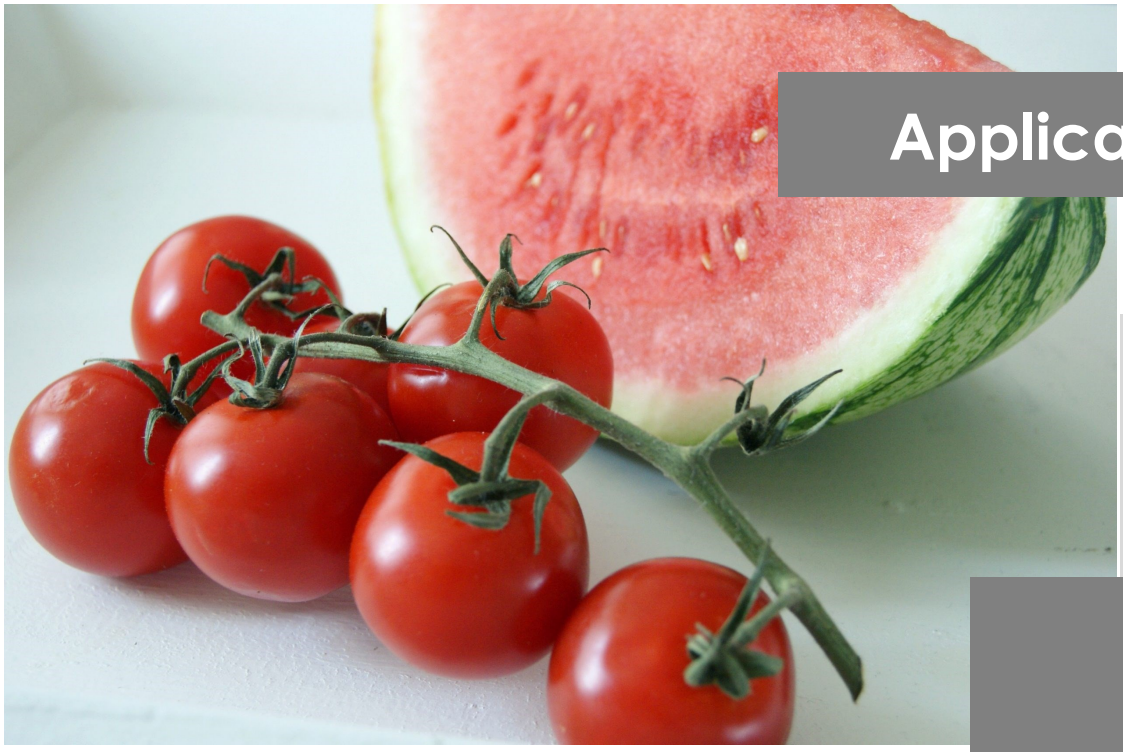

Application Note

No. 1052.01

Color Measurement of Lycopene in Tomatoes and Watermelon

. . . Color measurement is quicker and easier than high-performance liquid chromatography and does not require the use of hazardous solvents like acetone and hexane.

Abstract

Eighty-five to ninety percent of the color of a red, ripe tomato is due to the presence of lycopene. The skin of the tomato has the highest lycopene content of all its parts. Watermelon also contains lycopene (as much or more than raw tomato) and some efforts ae underway to breed higher levels of lycopene into watermelon species for its nutritional benefits.

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HunterLab

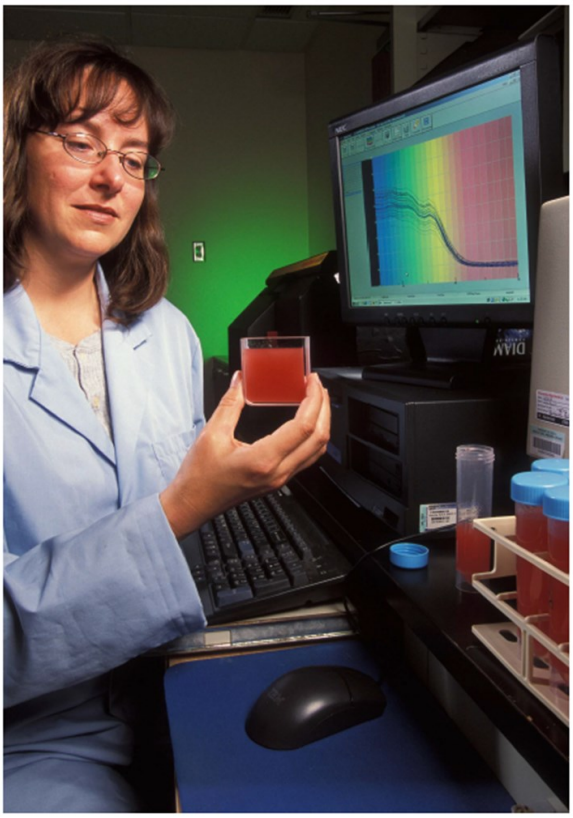
Since tomato skins are discarded in large quantities during the processing of tomatoes into paste, sauce, ketchup, etc., lots of lycopene is being lost. The potential exists to use this skin waste as a source of lycopene as a red colorant, primarily for foods (though this is not currently allowed in the United States). Lycopene is also beginning to be marketed as a nutritional supplement, since it is an excellent antioxidant and can help prevent heart disease and some forms of cancer. Raw tomatoes and processed tomatoes are rich in this healthy lycopene.

Challenge: To measure lycopene in tomatoes and watermelon

HunterLab already has a great deal of experience measuring processed tomato products using the ColorFlex EZ. The UltraScan PRO and UltraScan VIS can also measure lycopene puree in TTRAN (Total Transmittance) using a 10mm transmittance cell.

- The diffuse/8° geometry is appropriate for a highly scattering medium like watermelon or tomato puree.
- The pulsed xenon lamp can punch light through the translucent puree.

In the Davis articles, lycopene concentration was correlated to an absorbance value by subtracting the absorbance at 700nm from the absorbance at 560nm. This method of analysis is quicker and easier than high-performance liquid chromatography and does not require the use of hazardous solvents like acetone and hexane.



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About HunterLab

HunterLab is the technology leader in color measurement solutions, providing instruments, software, knowledge and service to a wide variety of industries.
With over 5 decades of experience in more than 65 countries, HunterLab applies our leading edge technology to your products helping you measure and communicate color simply and effectively.

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