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*Is Organic Really Healthier? A Redox Titration of Vitamin C in Organic and Conventional Citrus Fruit*

The purpose of this project was to determine whether or not an organic citrus fruit has more vitamin C than a conventional citrus fruit. I hypothesized that the organic citrus fruit would have a higher vitamin C content. This experiment involved extracting juice from citrus fruit (lemon, orange and red grapefruit) that was grown in the same region by type and testing the vitamin C levels by a redox titration of Iodine and a starch solution. The added Iodine was measured with a burette. The data collected did not support the original hypothesis. The average amount of vitamin C in conventional lemon samples was 1.376 mL as opposed to 0.758 mL for organic lemons grown in Southern California, which is a significant statistical difference. The average amount of vitamin C in conventional red grapefruit was 0.824 mL while the average amount in organic red grapefruit was 0.752 mL (grown in Texas). Conventional oranges average vitamin C levels tested at 1.224 mL vs. organic oranges at 1.134 mL (oranges from Southern California). While the statistical difference is less for both red grapefruit and oranges compared to the lemons, conventional fruit averages all tested higher in vitamin C. When random error is factored in, orange and red grapefruit overlap and there is no statistical difference between organic and conventional vitamin C levels for these citrus fruits. These findings lead me to conclude that conventional citrus fruit has more vitamin C than organic citrus fruit or that there is no statistical difference between conventional and organic citrus fruit.