142.Title: Quantitative Analysis of Amino Acids in Dietary Supplements Using Terahertz Time-domain Spectroscopy

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Abstract: We successfully analyzed the concentrations of five amino acids in commercially available dietary amino acid supplements by using terahertz time-domain spectroscopy (THz-TDS) with an error of +/- 12% for the best reproduced components. We also succeeded in analyzing tablets of the supplements wrapped in paper, and thus showed the merit of using THz waves for the nondestructive quantitative analysis of packaged samples by employing the fact that THz waves are capable of passing through several types of packaging material. The ability of THz waves to pass through the paper made it possible to perform a quantitative analysis using the same standard spectra as those used for an unwrapped sample, and the accuracy of a direct quantitative analysis of a packaged sample was almost the same as that of an unwrapped sample.