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Different aspects of non-destructive analysis of leaf teas

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Camellia sinensis L. is a perennial leafy crop. All varieties of tea are produced from the tea plants. The well-grown plants provide high-quality tea shoots, which vary with tea cultivars and the environmental conditions, such as the type of soil and altitude and climate of the growing area. FT-near-infrared spectroscopy (FT-NIRS) is a rapid and non-invasive analytical tool coupled with various chemometric methods, has been applied for the quality assessment of different type of teas. This process involves the recording of spectral data, their pre-processing, the assignment of the characteristic absorption bands, followed by pattern recognition methods and by development of prediction models after the determination of different physical and chemical properties. In this study, commercially available leaf teas with various oxidation states and geographical origins were examined using FT-NIR spectral data. Our aims were to investigate the effects of oxidation states and geographical origin of samples on NIR spectra and to explore the spectral diversity in the data set using chemometrics.