

平成 30 年度「日本薬局方の試験法等に関する研究」研究報告
日本薬局方収載医薬品の品質評価に向けた遠赤外/
テラヘルツ分光法など低波数振動分光技術の標準化に関する研究
—遠赤外/テラヘルツスペクトルを用いた市販医薬品(錠剤)の識別性評価—*4

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Study on Standardization of a Low Frequency Vibrational Spectroscopic Technology Such as
Far-infrared / Terahertz (THz) Spectroscopy for Pharmaceutical Quality Evaluation
— Spectral Distinguishability Among Commercial Pharmaceuticals (Tablets)
Using Far-infrared / THz Spectroscopy —

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Summary

Terahertz (THz) spectral distinguishability was examined by using Japanese Pharmacopoeia (JP) ofloxacin (OFXN) tablets to evaluate the feasibility of using THz spectroscopy for qualitative pharmaceutical analysis. The characteristic THz absorptions of OFXN were observed in the THz spectra obtained from JP OFXN tablets (OFXN content in the tablets: approximately 50 w/w%). Moreover, grouping of JP OFXN tablets depending on their source was successfully achieved by cluster analysis and principal component analysis (PCA) using second derivative THz spectra. These results suggest that THz spectroscopy is applicable not only to confirm the identity of commercial JP pharmaceuticals, but also to detect substandard or suspected counterfeit pharmaceuticals on the market.

Key words

Terahertz spectroscopy, Qualitative analysis, Cluster analysis, Principal component analysis