

平成 27 年度「日本薬局方の試験法等に関する研究」研究報告
測定試料数が多い場合に適用される製剤均一性試験の規格に関する研究*³

小出 達夫*^{1, #}, 島村 りえ*², 井上 元基*², 深水 啓朗*²

Study on the Criteria for Uniformity of Dosage Units using Large Sample Sizes

Tatsuo KOIDE*^{1, #}, Rie SHIMAMURA*², Motoki INOUE*² and Toshiro FUKAMI*²

Summary

The purpose of this study was to investigate the criteria for uniformity of dosage units using large sample sizes.

Acetaminophen as an active pharmaceutical ingredient and lactose monohydrate as an excipient were mixed in mortars for 15 seconds, 1 minute and 30 minutes. The content ratio of acetaminophen : lactose was 20 : 80. The mixed powders (300 mg) were compressed into experimental tablets at 20 MPa pressure by hand. Then, the transmission Raman spectra of 100 tablets prepared under each mixing condition were measured. Quantification was performed by partial least-squares (PLS) multivariate analysis with standard normal variate (SNV) using the Raman spectra.

The average values of the quantitative results of acetaminophen in the tablets showed no significant differences with different mixing times, though the standard deviation was lower at longer mixing times. When these samples were used in a simulated test of uniformity of dosage units, the results of acceptance were mostly concordant with the criteria proposed by several pharmaceutical organizations. However, there were some inconsistencies. Therefore, we still need to achieve harmonization of criteria for uniformity of dosage units using large sample sizes.

Key words

Large sample size, Transmission Raman spectroscopy, Uniformity