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Validation of Analysis Methods of Decursin and Decursin angelate from *Angelicae gigantis Radix* by Reversed-phase Liquid Chromatography

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The determination method of decursin and decursin angelate from *Angelicae gigantis Radix*, an important crude drug in oriental medicine, was developed and validated by a reverse-phase liquid chromatography. The decursin and decursin angelate, the structural isomer as pyranocoumarin each other, are the main organic constituents in *Angelicae gigantis Radix*. In this study, the method was developed using a RP-18 column, UV detector at 280 nm and 50 % acetonitril solution containing 0.01 M sodium dodecyl sulfate and 25 mM Sodium dihydrogen phosphate (pH 5.0) as the mobile phase. The procedure was validated by linearity (correlation coefficient = 0.9996, 0.9994), accuracy, robustness and intermediate precision. Also the method was applied to circulated *Angelicae gigantis Radix* in the herbal markets and concentration of decursin and decursin angelate of circulated samples were monitored with this method.

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Anti-oxidant activities of the extracts from the herbs of *Artemisia apiacea*

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The anti-oxidant activities of the various fractions from the herbs of *Artemisia apiacea* were investigated. The n-hexane and n-butanol fractions were found to cause significant free radical scavenging effects on DPPH, their scavenging potencies as indicated in IC50 values, being 230.1 and 183.7 mg/ml, respectively. The n-butanol fraction exhibited a significant decrease in serum transaminase activities elevated by hepatic damage induced by CCl4-intoxication in rats. All fractions tested exhibited a lipid peroxidation causing a significant decrease in MDA production in TBA-reactant assay. The n-butanol fraction was the strongest in the increase in the anti-oxidant enzymes such as hepatic cytosolic superoxide dismutase (SOD), catalase and glutathione peroxidase (GSH-px) activities in CCl4-intoxicated rats. These results suggest that the herbs of *A. apiacea* possess not only the anti-oxidant, but also the activities in CCl4-intoxicated rats. Especially, the n-butanol extract was found to cause significant increases in the rat liver cytosolic SOD, catalase, GSH-px activities as well as a significant decrease in the MDA production.

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Profiling Analysis of Sphingolipids in HL-60 Cells by High-Performance Liquid Chromatography-Tandem Mass Spectrometry in combination with Multiple Reaction Monitoring

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Sphingolipid species are important second messengers due to their role in the mitogenesis, differentiation and apoptosis. We developed a new column liquid chromatography-triple quadrupole tandem mass spectrometry (LC-MS/MS) in combination with multiple reaction monitoring (MRM) method for the rapid, simultaneous and quantitative determination of unambiguous detecting sphingolipids in cell culture of human cancer cells (HL-60). Triple quadrupole mass spectrometry equipped with a turbo ion spray source. 23 sphingolipid species can be identified in a single run with a limit of detection (LOD) of 6.0 to and 15.0 pg for ceramide and sphingolipid derivatives. The developed LC-MS/MS method allows the sensitivity, selectivity and rapid monitoring of sphingolipid species in cell matrices with a dramatically reduced time for sample preparation, a simple run and a safety.

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EVALUATION OF NON-INVASIVE BLOOD GLUCOSE MEASUREMENT USING THREE TYPES OF NEAR INFRARED SPECTROMETER

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Three types of near infrared spectrometer, a photo diode array type, a dispersive type and a FT type, were evaluated and compared the systematic difference in blood glucose measurement. The fundamental study was performed by adding glucose to buffer solution and bovine blood as the preceding study of non-invasive blood glucose. Spectra were collected using a 1.0 mm optical pathlength quartz cell by transmittance method. Partial least squares (PLS) regression analysis was used to build proper calibration models for glucose contents in buffer solution and bovine blood. Based on the fundamental study, non-invasive blood glucose monitoring in human body was developed. The comparison results of each spectrometer show the potential of non-invasive blood glucose monitoring using near infrared spectrometer.

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HPLC를 이용한 Lysozyme chloride의 함량분석에 관한 연구

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The aim of this work was to develop an reverse-phase method for the analysis lysozyme contents. This method was sensitive and reproducible. The experimental samples were 8 kinds of capsules and one tablet, collected in domestic area.

The results were summarized as follows.

1. Calibration curve showed a good lineality($r=0.999$) in 5~200 $\mu\text{g}/\text{mL}$ of standard solutions.
2. The recovery rates were greater than 97.0%.
3. The reverse-phase HPLC assay employed an acetonitrile gradient in trifluoroacetic acid. The limits of detection and quantification were 5.0 $\mu\text{g}/\text{mL}$, 15.0 $\mu\text{g}/\text{mL}$.
4. The results of content by HPLC method were similar to turbidimetric assay but there were not good correlation between them.