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Prediction of fetal lung maturity using L/S ratio analysis with a simplified sample preparation, using a commercial microtip-column combined with mass spectrometric analysis

Hee-Jung Chung

Dankook University, South Korea

Fetal lung maturity is estimated using the lecithin/sphingomyelin ratio (L/S ratio) in amniotic fluid and it is commonly measured with thin-layer chromatography (TLC). The TLC method is time consuming and technically difficult; however, it is widely used because there is no alternative. We evaluated a novel method for measuring the L/S ratio, which involves a tip-column with a cation-exchange resin and mass spectrometry. Phospholipids in the amniotic fluid were extracted using methanol and chloroform. Choline-containing phospholipids such as lecithin and sphingomyelin were purified by passing them through the tip-column. LC-MS/MS and MALDI-TOF were used to directly analyze the purified samples. The L/S ratio by mass spectrometry was calculated from the sum peak intensity of the six lecithin, and that of sphingomyelin 34:1. In 20 samples, the L/S ratio determined with TLC was significantly correlated with that obtained by LC-MS/MS and MALDI-TOF. There was a 100% concordance between the L/S ratio by TLC and that by LC-MS/MS (κ value=1.0). The concordance between the L/S ratio by TLC and that by MALDI-TOF was also 100% (κ value=1.0). Our method provides a faster, simpler, and more reliable assessment of fetal lung maturity. The L/S ratio measured by LC-MS/MS and MALDI-TOF offers a compelling alternative method to traditional TLC.

vivid.hee@gmail.com

Isolation of ulceroprotective cucurbitane type triterpenoids from *Cucumis melo* seeds

Gurpreet Singh Bal and Naresh Singh Gill

Punjab Technical University, India

Medicinal plants are the richest bio-resources of drugs in traditional medicinal systems, modern medicines, folk medicines, intermediate and chemicals entitled for synthetic drugs. Plants provide a source of inspiration for novel drug development as they contain a vast array of substances that treat chronic diseases. *Cucumis melo* seeds have been traditionally used for treating various health ailments. The main aim of our current study is to isolate cucurbitane-type triterpenoids from *Cucumis melo* seed extract and conduct anti-ulcerogenic activity of the isolated compound. Phytochemical investigations of methanolic seed extract of *Cucumis melo* was carried out which showed the presence of various important phytoconstituents. The main active constituents of *Cucumis melo* have shown a number of potent pharmacological activities. The isolation of Cucurbitane-type triterpenoids was carried out by column chromatography using methanolic seed extract of *Cucumis melo*. Mobile phase hexane and hexane-ethyl acetate (98:2) was used to run the column. TLC profiling was done simultaneously in an appropriate solvent system (hexane: ethyl acetate, 97:3). Various fractions were collected. The fractions with similar R_f value were pooled together. Fractions giving single spot in the TLC were regarded as pure. The isolated compound showed positive result for Liebermann-Burchard test from which we can conclude that the isolated compound might be triterpenoid. The structure of the isolated compound was determined by IR, ¹HNMR, ¹³CNMR techniques. The spectral analysis of the isolated compound showed following results: IR- it showed the peaks at 3383, 2976, 2814, 1721, 1465, 1123 cm⁻¹ indicated the presence of alcoholic group.

gurpreet@yahoo.com