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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

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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 (kappa value=1.0). The concordance between the L/S ratio by TLC and that by MALDI-TOF was also 100% (kappa 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.

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

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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.

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