An Improved HPLC-ELSD Method To Separate And Quantify Sugar Components From Soybean Tissues

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High performance liquid chromatography (HPLC) has been widely used for sugar analysis from plants. Several sugar analysis methods are available on chromatographic conditions such as detectors, columns, and mobile phases for specific type of samples. We have developed an improved HPLC-ELSD (evaporative light scattering detection) method for sugar analysis from soybean tissues. Sugar components including six major sugars such as fructose, glucose, sucrose, melibiose, raffinose, and stachyose were separated and quantified. Soybean samples were mechanically ground and lyophilized, and the sugars were extracted with water at 55 °C for 15 minutes. Water was chosen as extracting medium for its superior dissolving power compared with other solvents such as methanol and ethanol. Samples were further purified and diluted by 95% acetonitrile before being subjected to HPLC-ELSD. Detection limit of this method is highly improved when compared to the available methods and the chromatographic elution time is less than 20 minutes. Major advantages of this method include improved detection limit, high separation resolution, rapid analysis cycles, and wide calibration range. Funding support from the United Soybean Board is acknowledged.

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