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Coupled LC-GC for the Analysis of Pesticide in Food

Ryoichi Sasano, Yutaka Nakanishi

Saika Technological Institute Foundation,

75-2, Kuroda, Wakayama-city, Japan

E-mail: sasano@saika.or.jp

Abstract;

The purpose of this study is to couple reversed-phase high performance liquid chromatography (LC) with gas chromatography (GC) for automated analysis of pesticide in food samples.

The interface employed for coupling LC with GC consists of two channels equipped with a solid phase extraction (SPE) cartridge. One is a channel where water is added to the eluate containing the target compound separated by LC and continuously it is loaded on the SPE cartridge. The target compound is adsorbed in the SPE cartridge. The other is channel where the adsorbed target compound is eluted from the SPE cartridge and the eluate is injected directly into the GC injector. By using SPE for coupling LC with GC, it becomes possible to change to the solvent which can be injected into the GC (e.g., acetone and hexane) from the solvent which cannot be injected (e.g., water and acetonitrile). The GC injector is a PTV injector equipped with a stomach type of insert in order to inject all of eluate from the SPE cartridge. This LC-(SPE)-GC system has been evaluated by analyzing chlorpyrifos in spinach. The recovery and repeatability were satisfactory.