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Simultaneous Determination of Ginsenosides and Saikosaponins by HPLC*

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We prepared octadecylsilyl porous glass (MPG-ODS) as the packing for reversed phase high-performance liquid chromatography (HPLC) and achieved rapid and excellent separation and quantitative determination of ginsenosides with the column. Ginsenosides are saponins of ginseng, the roots of *Panax ginseng,* which has long been used in traditional oriental medicine.

In the medicine, several crude drugs are generally prescribed in a single formula. Among the important crude drugs often prescribed with ginseng are bupleurum root, the roots of *Bupleurum falcatum,* and glycyrrhiza. The pharmacological studies on these crude drugs have centered on the saponins. Saikosaponins and glycyrrhizin were isolated from bupleurum root and glycyrrhiza, respectively. Since the crude drugs are used in the same pharmaceutical preparations, simultaneous determination of the saponins were often required.

A mixture of ginsenosides and saikosaponins were analyzed by HPLC using the column of MPG-ODS with detection at 203 nm. A well-resolved chromatogram of ginsenoside Rb_1, Rc, Rb_2, Rd and saikosaponin a, b_2 and c was obtained with acetonitrile-water (25.5 : 74.5) as the mobile phase. The whole separation was achieved in 20 min with a flow-rate of 1.5 ml/min. Calibration curves of ginsenoside Rb_1, Rc, Rb_2, Rd and saikosaponin a, c were linear up to 5 μg. A pharmaceutical preparation of commercial origin, "Shosaiko-to", was analyzed by the procedure. It was concluded that the rapid and accurate simultaneous determinations of the saponins is possible by the described method.

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