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**Comparison of columns of chemically modified porous glass
and silica in reversed-phase high-performance
liquid chromatography of ginsenosides***

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Microporous glass (MPG) is a promising material as the packing of high-performance liquid chromatography (HPLC) for its high chemical resistance and for its homogeneous and cylindrical pores. It is stable between pH 2 and 12. The distribution of the pore size is relatively narrow compared with silica. Though chemically modified silicas are the most commonly used packing materials, their pore size distributions are broad and sometimes bimodal.

We prepared octadecylsilyl porous glass (MPG-ODS) and used it as the packing for reversed-phase HPLC. The columns of MPG-ODS have been successfully used for analytical and preparative HPLC of ginsenosides, saponins of ginseng. Two mobile phases of water-acetonitrile were used for the isocratic elutions of water soluble panaxatriols and other less hydrophilic saponins. Recently Petersen et. al reported HPLC analysis of ginsenosides with a C₁₈ silica column. They used a two-step gradient elution of water-acetonitrile for simultaneous separation of six main ginsenosides.

We examined the chromatographic behavior of the saponins and related compounds on a number of columns of chemically modified porous glass (pore size 550 Å) and silica (pore size 80 Å and 300 Å). Though the retention behavior of ginsenosides was similar on the columns examined, the capacity factors of ten ginsenosides on MPG-ODS column were smaller than on silica columns. From the data presented, it is concluded that MPG-ODS column has a number of advantages over conventional silica-ODS columns for the chromatography of ginsenosides. These properties are attributable to the optimal pore size for the molecular size of the saponins on the one hand and to the narrow distribution range of the pore size on the other.

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