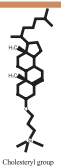


# SEPARATION OF NATURAL COMPOUNDS USING A NOVEL CHOLESTEROL-BASED STATIONARY PHASE



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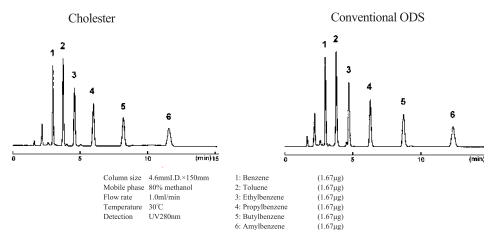
## Abstract:

A novel cholesterol-based stationary phase has been developed to separate isomers and other closely related compounds. Dietary supplements and natural products often contain geometric or positional isomers that are difficult to separate using traditional reversed-phase HPLC column. Therefore, it has been challenging to analyze natural compounds and dietary supplements chromatographically. The novel cholesterol-based stationary phase can better resolve closely related analytes in natural products. Applications in analysis of several natural products and dietary supplements are presented.

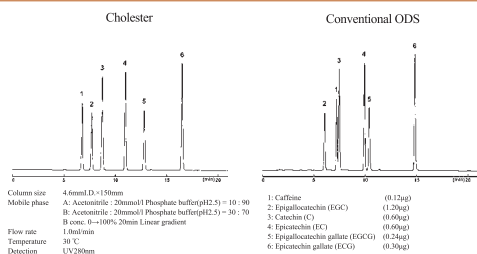
## Introduction:

The optimization of analytical conditions for natural compounds, which contain structural isomers is often problematic. We have developed a new cholesterol-based stationary phase, which shows the same hydrophobicity as ODS stationary phase but very unique selectivity. This study demonstrated the different selectivity for natural compounds between the new stationary phase and ODS phase when the columns are used with the same analytical conditions.

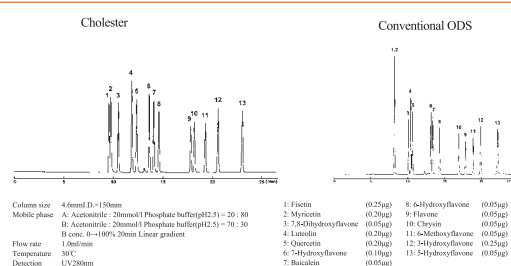
## ► Separation of Alkylbenzene (comparison of Hydrophobicity) ◀



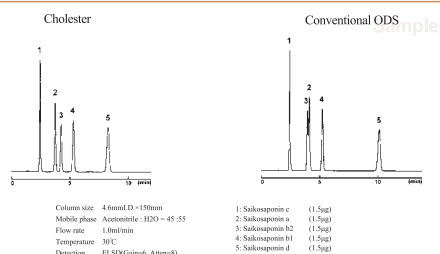
## ► Catechins ◀



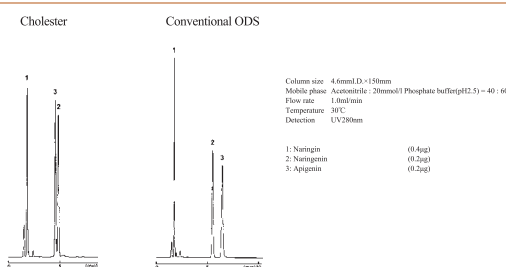
## ► Flavones ◀



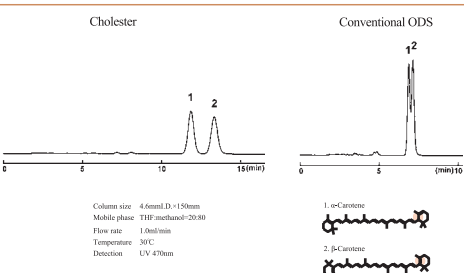
## ► Saikosaponins ◀



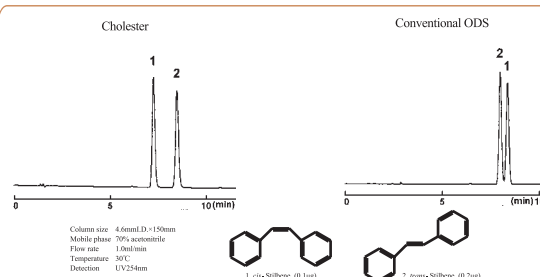
## ► Flavanones ◀



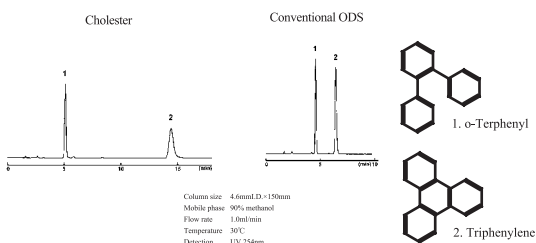
## ► Structural Isomers Like Carotenes ◀



## ► Diastereomers Like Stilbens ◀



## ► Stereo Selectivity (Planarity: *o*-Terphenyl < Triphenylene) ◀



## Conclusion:

The COSMOSIL Cholester is a useful column for the development of HPLC methods for dietary supplements and natural products. It can often be used as a direct replacement for traditional C<sub>18</sub> stationary phases, exhibiting slightly greater retention of many compounds. In addition, the COSMOSIL Cholester column can provide improved selectivity for closely related compounds compared with C<sub>18</sub> stationary phases, particularly with geometrical or positional isomers.