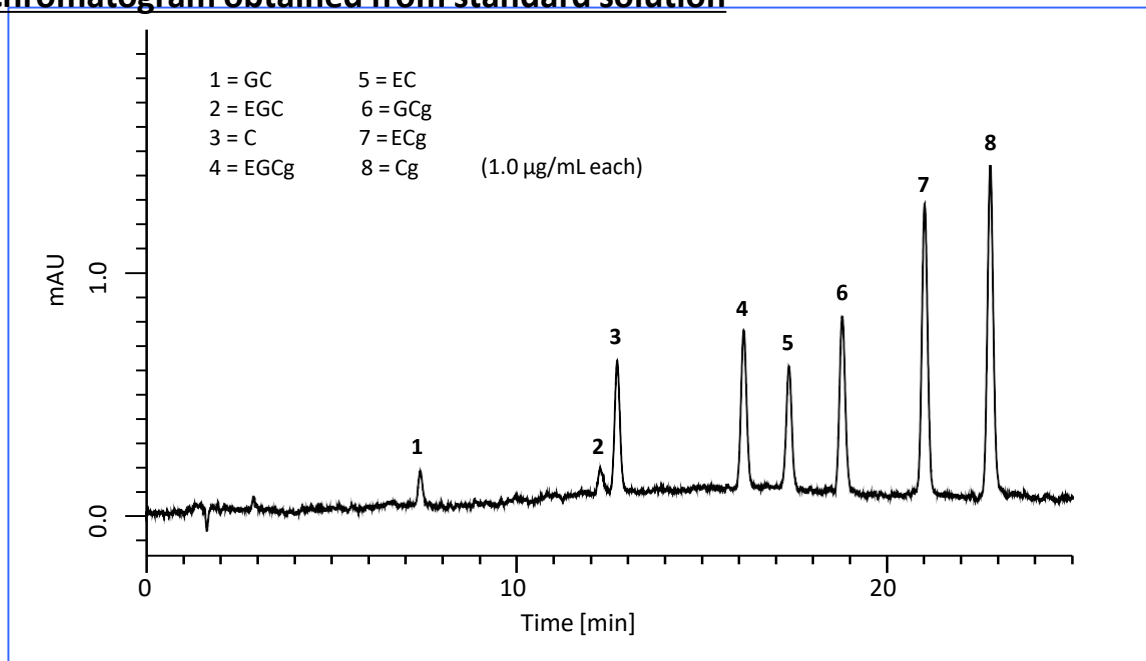


Catechins are antioxidant plant metabolites, which are a type of flavonoid. Recently, many studies reported that catechins provide several health benefits, such as antioxidant effect, reduction in atherosclerotic plaque, and cancer prevention.

This note describes a determination method for catechins. To achieve the separation of eight major catechins (catechin (C), catechin gallate (Cg), epicatechin (EC), epicatechin gallate (ECg), gallic catechin (GC), gallic catechin gallate (GCg), epigallocatechin (EGC), epigallocatechin gallate (EGCg)), 4 μm particle column which offers high separation efficiency was used. As a result, the catechins in soft drink were successfully separated and determined.

A chromatogram obtained from standard solution



Conditions

- | | | | |
|--------------|--|-------------|---|
| • Column | Inertsil ODS-3 (4 μm , 150 x 4.6 mm I.D.)
Cat.No. 5020-04645 | • Eluent | A) CH_3OH B) 10 mM NaH_2PO_4
(A/B) = (10/90) - 30 min - (50/50), v/v |
| • Col. Temp. | 40 $^\circ\text{C}$ | • Flow rate | 1.0 mL/min |
| • Detection | UV 280 nm | • Inj. Vol. | 10 μL |

The features of Inertsil ODS-3 4 μm

- ◆ **Low pressure** : Compared with 3 μm particles, the column pressure is nearly half.
- ◆ **High theoretical plate number**
: The number of theoretical plates increased by 15% when comparing from a 5 μm column. (100,000 per meter is guaranteed)
- ◆ **Economical** : The column lifetime is long having nearly the same price of 5 μm columns.

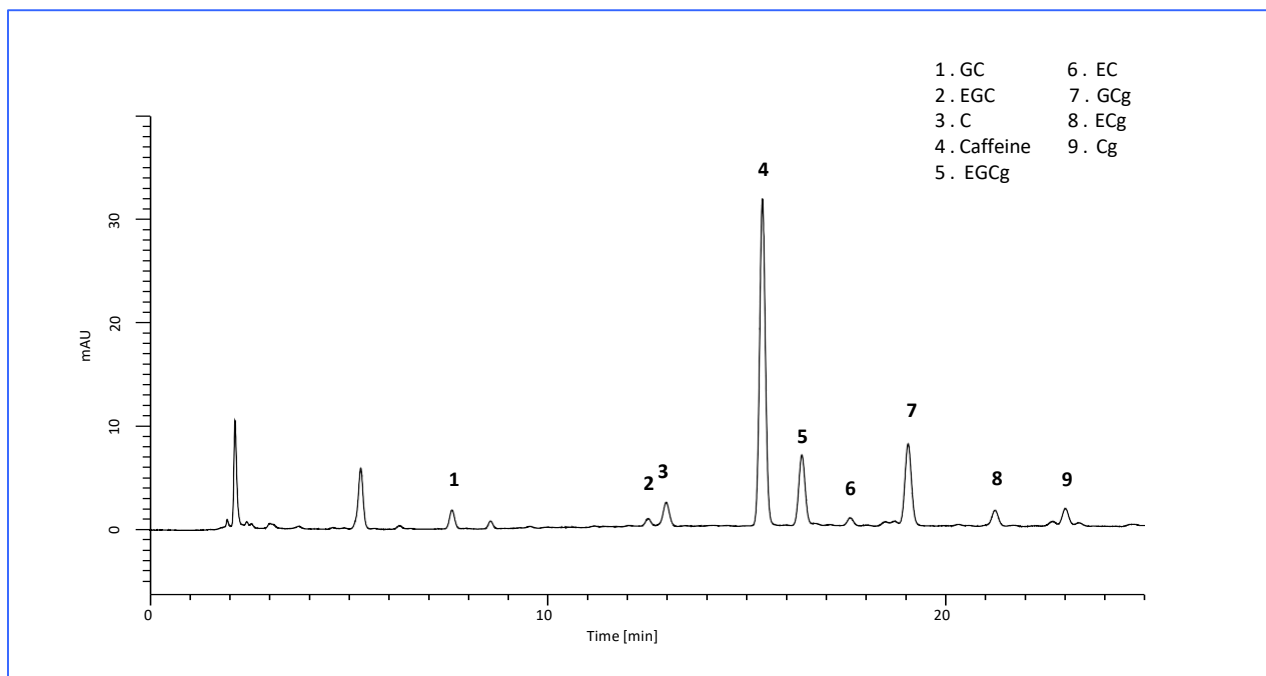
The 4 μm column offers high separation efficiency with low pressure !!

Analyses of catechins and caffeine in soft drink samples

Green tea in PET bottle

<Sample pretreatment>

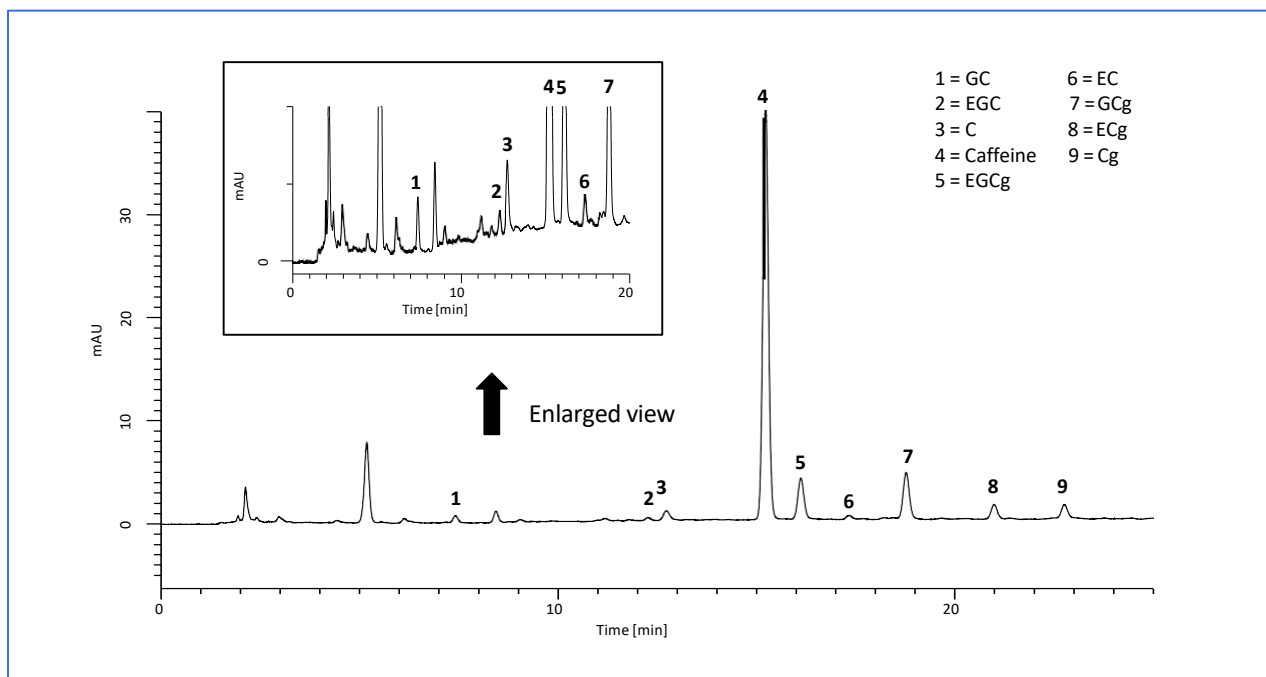
The sample was filtrated with 0.45 μm membrane filter (GL CHROMATO DISK) and 10-fold diluted with water.



Oolong tea in PET bottle

<Sample pretreatment>

The sample was filtrated with 0.45 μm membrane filter (GL CHROMATO DISK) and 10-fold diluted with water.

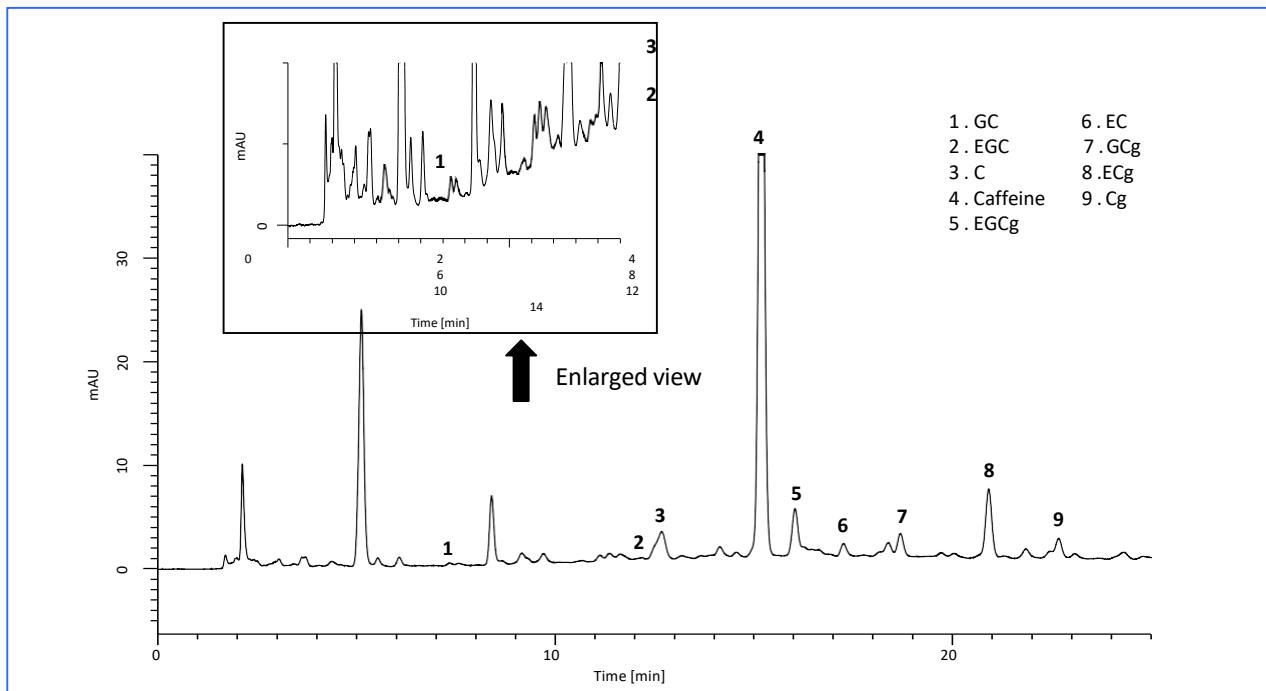


Analyses of catechins and caffeine in soft drink samples

Black tea (straight) in PET bottle

<Sample pretreatment>

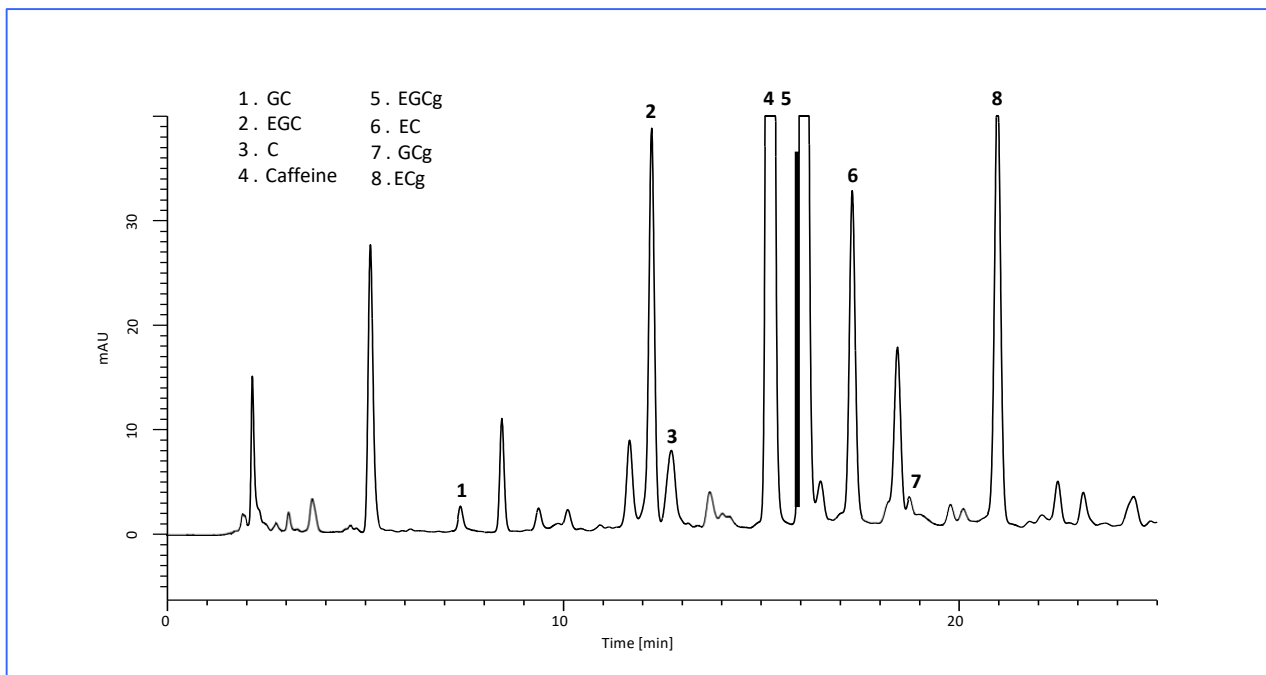
The sample was filtrated with 0.45 μm membrane filter (GL CHROMATO DISK) and 5-fold diluted with water.



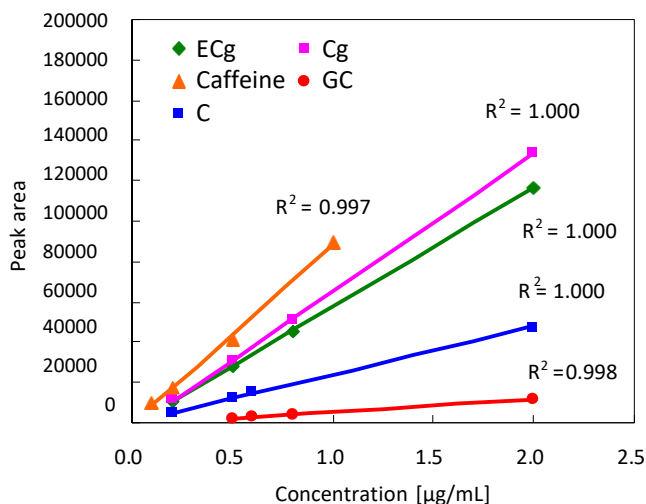
Extract from tea leaves

<Sample pretreatment>

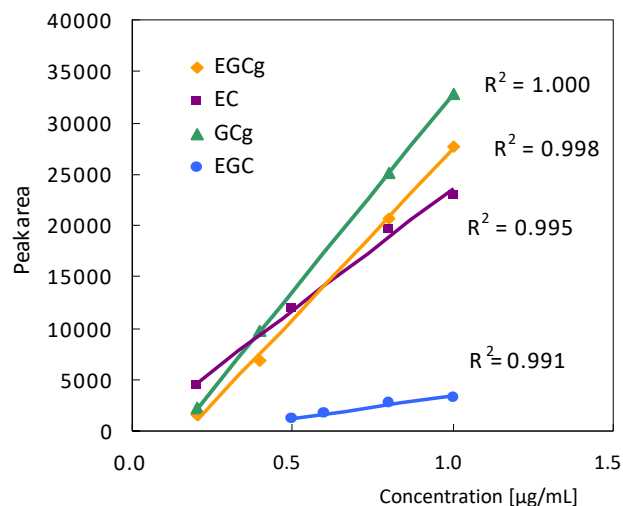
To 5.0 g of tea leaves, 50 mL of boiled water was added. After waiting for 5.0 min, the solution was filtrated with 0.45 μm membrane filter (GL CHROMATO DISK) and 10-fold diluted with water.



Calibration curves (8 catechins and caffeine)



Calibration curves (ECg, Cg, Caffeine, GC, C)



Calibration curves (EGCg, EC, GCg, EGC)

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