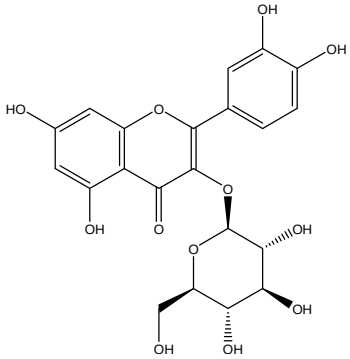
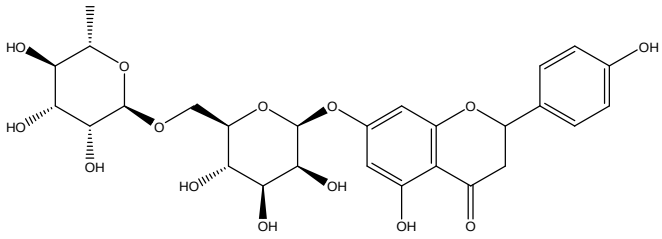
フラボノイド類　Flavonoids

フラボノイド類の分析では，アントシアニンのピーク形状を改善する目的で，移動相に添加する酸の濃度を高くする必要がありますが，今回分析対象としたケルセチンとナリンゲニン及びその配糖体，アピゲニン，ケンフェロールは，0.1 %のギ酸を添加した移動相で良好なピーク形状が得られました. カラムには CAPCELL CORE C_{18} S2.7（2.1 mm i.d. x 150 mm）を用い，流速は通常の流速 200 µL/min の 2 倍としました．各成分は良好なピーク形状で，15 分で完全に分離しました（圧力：装置とカラムの分を含め最大 34.6 MPa）.

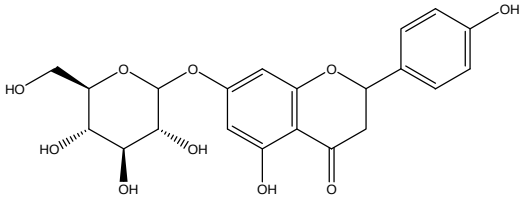
It used to be a common strategy to add a high concentration of acid to a mobile phase in order to improve a peak shape of anthocyanin. Using CAPCELL CORE C_{18} S2.7 (2.1 mm i.d. x 150 mm), quercetin, naringenin, and their glycoconjugates, apigenin, and kaempferol, all showed a good peak shape under a mobile phase containing no more than 0.1% formic acid. The compounds were efficiently separated within 15 minutes at a flow rate of 400 µL/min, which corresponds to twice a conventional flow rate for 2.0-2.1 mm i.d. column (max. pressure across instruments and the column: 34.6 MPa).



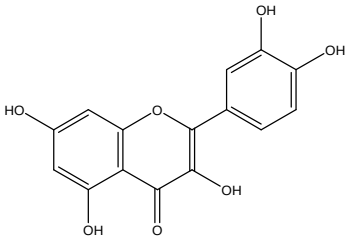
1. ケルセチン 3-グルコシド (1 mmol/L)
   Quercetin 3-glucoside (M.W. 464.4)



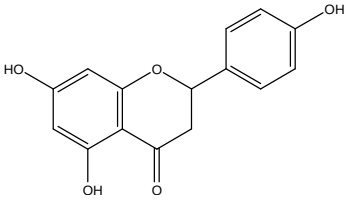
2. ナリンゲニン 7-ルチノシド (1 mmol/L)
   Naringenin 7-rutinoside (M.W. 580.5)



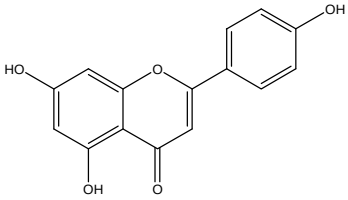
3. ナリンゲニン 7-グルコシド (1 mmol/L)
   Naringenin 7-glucoside (M.W. 434.4)



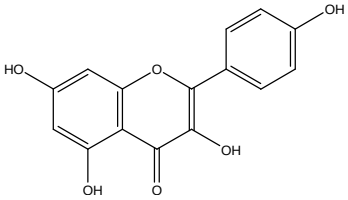
4. ケルセチン (1 mmol/L)
   Quercetin (M.W. 302.2)



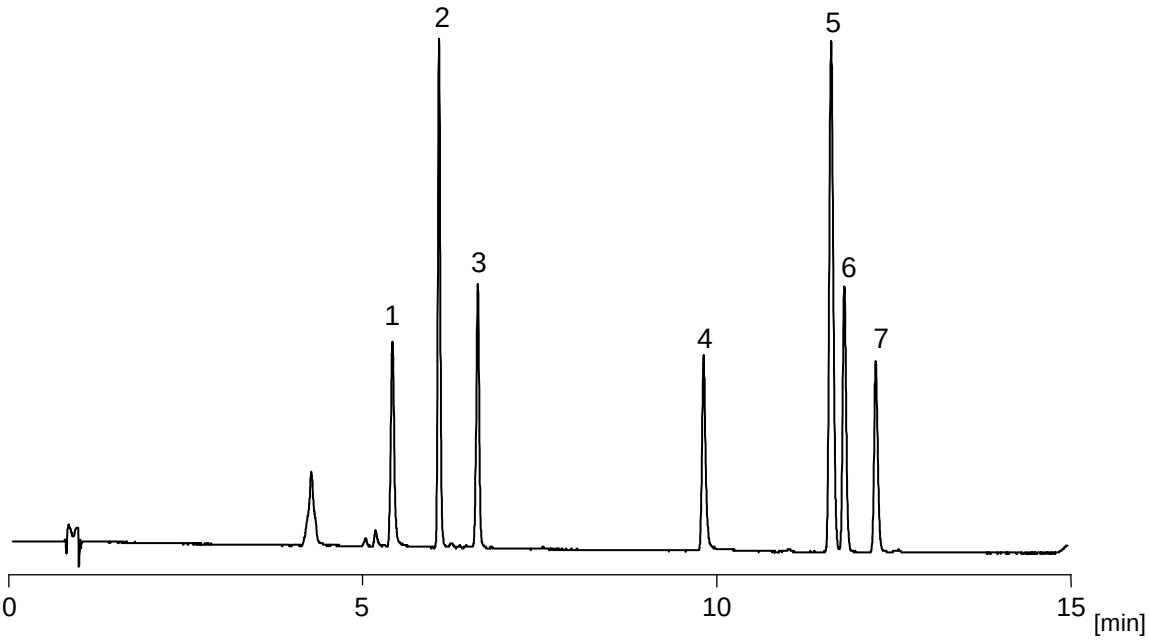
5. ナリンゲニン (1 mmol/L)
Naringenin (M.W. 272.3)



6. アピゲニン (1 mmol/L)
Apigenin (M.W. 270.2)



7. ケンフェロール (1 mmol/L)
Kaempferol (M.W. 286.2)



【HPLC Conditions】

Column	: CAPCELL CORE C_{18} S2.7 ; 2.1 mm i.d. x 150 mm
Mobile phase	: A) 0.1 vol% HCOOH, B) CH_3CN
	B 10 % (0 min) → 35 % (14.0 min) → 10 % (14.1 min) Gradient
Flow rate	: 400 μL/min
Temperature	: 40 ˚C
Detection	: UV 280 nm
Inj. vol.	: 0.5 μL
Sample dissolved in	: Each standard was separately dissolved in ethanol at 100 mmol/L. 10 μL of all the solutions were added together, and diluted to 1 mL with the CH_3OH.