

# **HPLC ANALYSIS OF FOODS AND BEVERAGES**

## **EXAMPLES OF SEPARATION**



**ELSICO. BEAUTY IN SEPARATION**

## HPLC analysis of champagne wine and beer on 250x8 NanoSpher Sugars-1

**Stationary Phase:** NanoSpher Sugars-1

**Column Dimensions:** 250x8

**Mobile Phase:** 0.1% aqueous H<sub>3</sub>PO<sub>4</sub>

**Flow Rate:** 0.4 ml/min

**Temperature:** 60°C

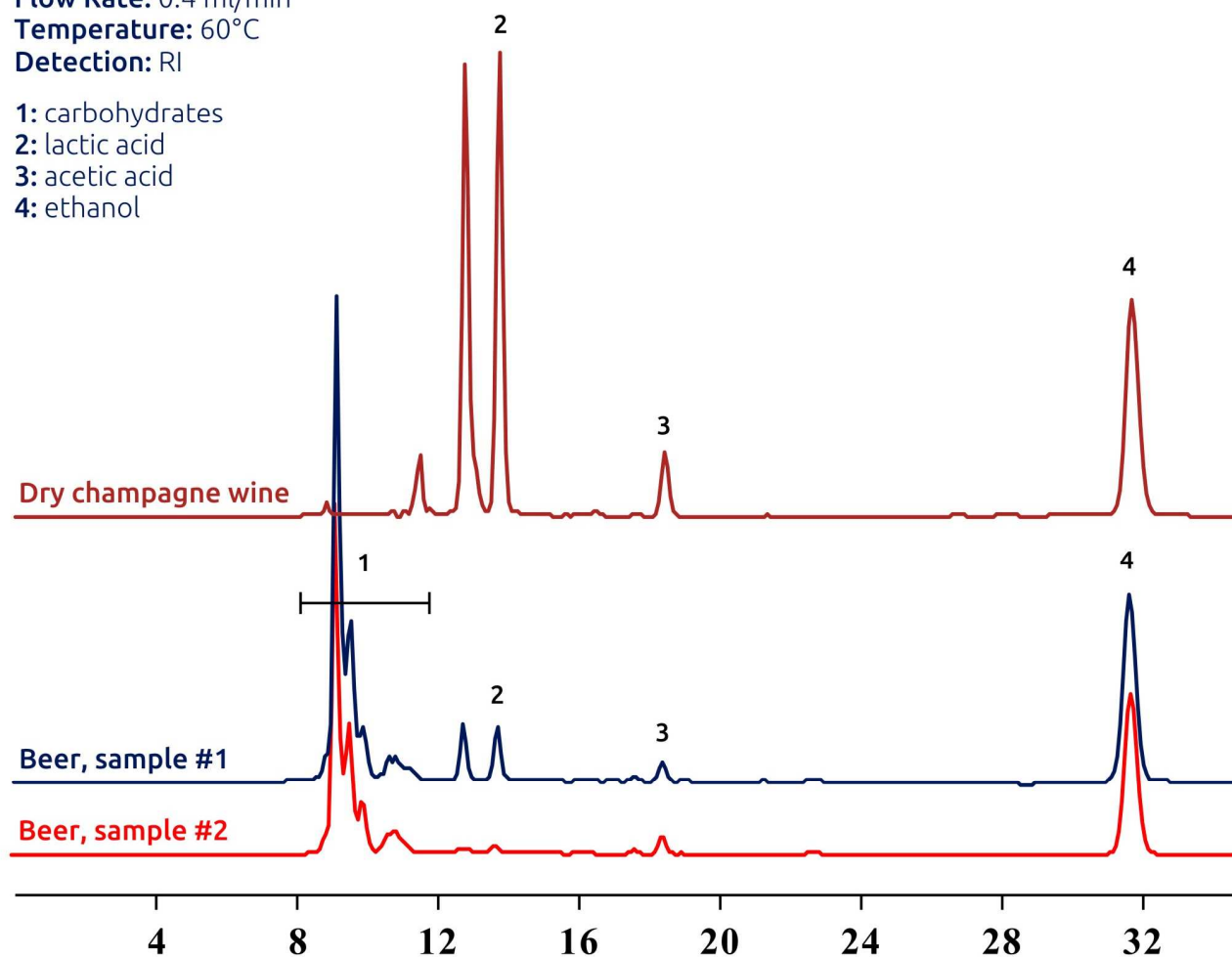
**Detection:** RI

1: carbohydrates

2: lactic acid

3: acetic acid

4: ethanol



## HPLC determination of Lactose in premixes on 250x8 NanoSpher Sugars-1

**Stationary Phase:** NanoSpher Sugars-1

**Column Dimensions:** 250x8

**Mobile Phase:** 0.1% aqueous H<sub>3</sub>PO<sub>4</sub>

**Flow Rate:** 0.4 ml/min

**Temperature:** 60°C

**Detection:** RI

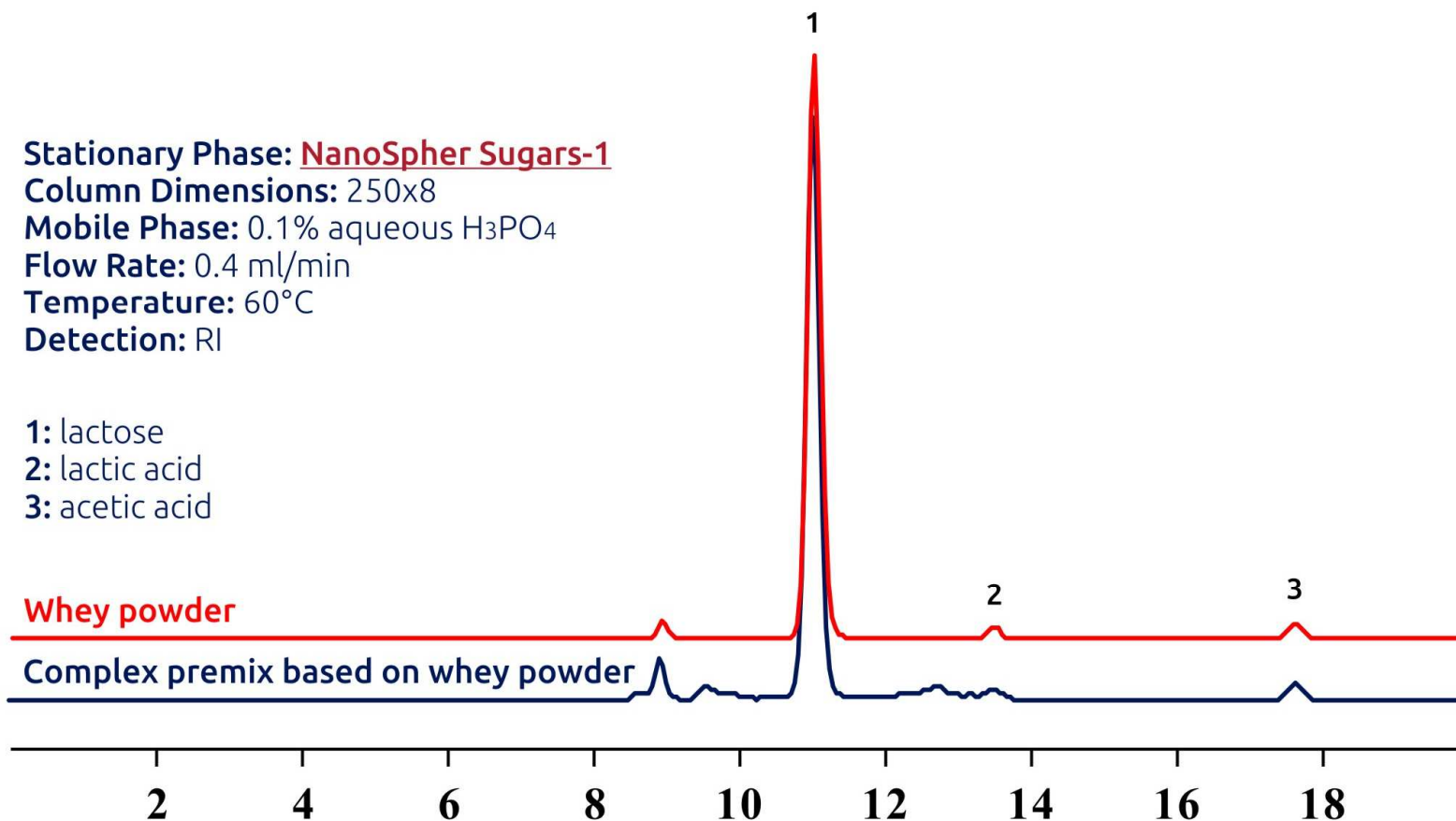
1: lactose

2: lactic acid

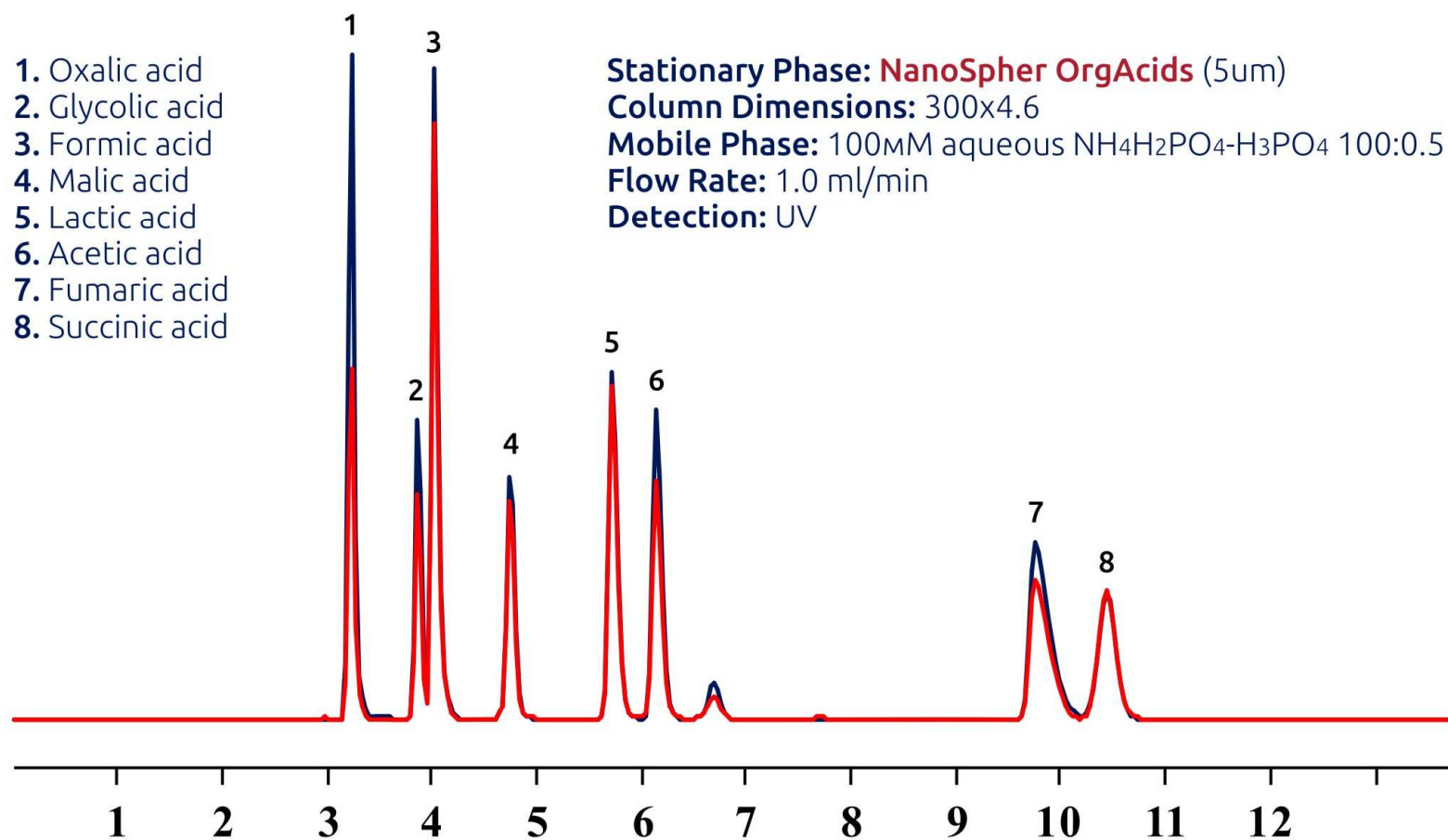
3: acetic acid

**Whey powder**

**Complex premix based on whey powder**



## HPLC separation of 8 organic acids on 300x4.6 NanoSpher OrgAcids (5um)





## HPLC separation of 5 azo dyes banned for food use on NanoSpher Azo Dyes

**Stationary Phase:** NanoSpher Azo Dyes

**Column Dimensions:** 250x4

**Mobile Phase:** Acetonitrile-(50mM aqueous  $\text{NH}_4\text{H}_2\text{PO}_4$ )-  
 $\text{H}_3\text{PO}_4$  70:30:0.1

**Flow Rate:** 1.1 ml/min

**Detection:** Vis 450 nm, 550 nm

**AL.** Allura Red AC

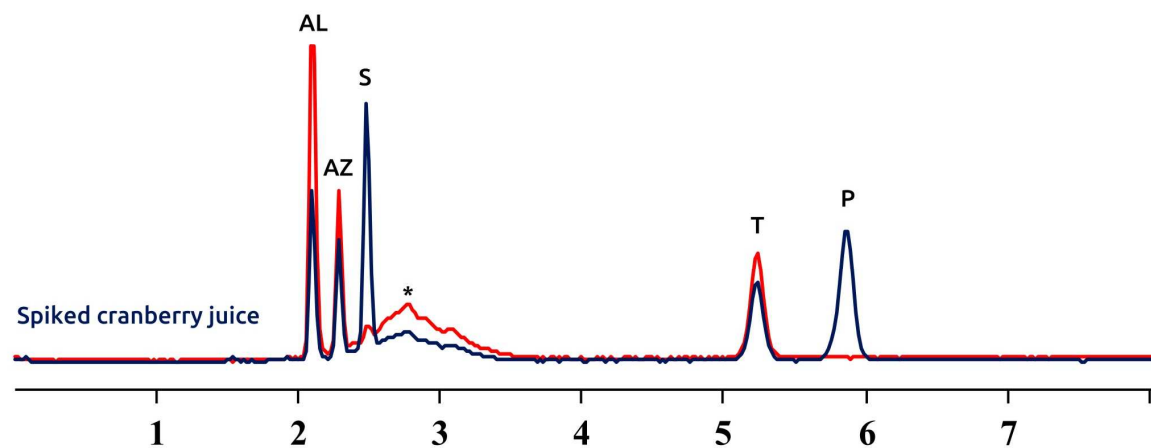
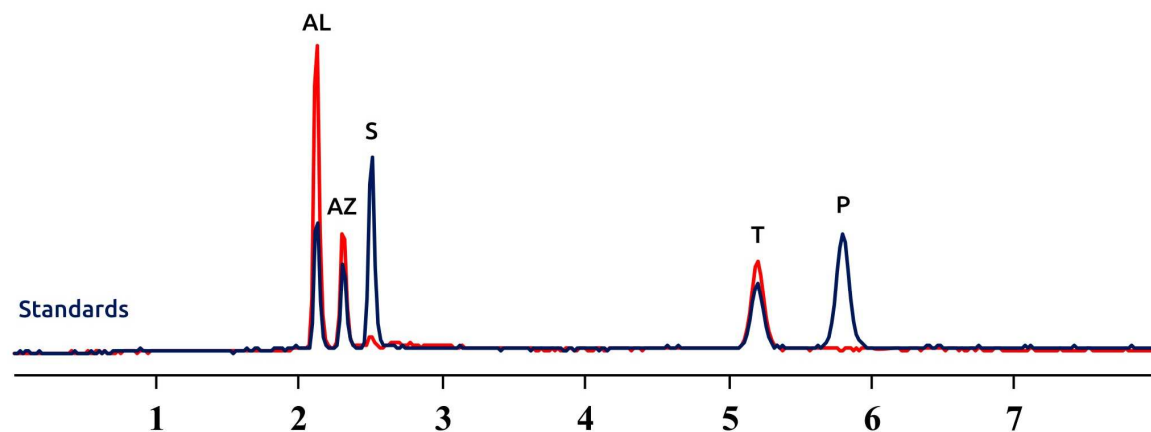
**AZ.** Azorubine

**S.** Sunset Yellow FCF

**T.** Tartrazine

**P.** Ponceau S

\* Anthocyanins



## HPLC separation of 15 cognac markers on 250x4.6 NanoSpher Cognac (3.5um)

**Stationary Phase:** NanoSpher Cognac (3.5um)

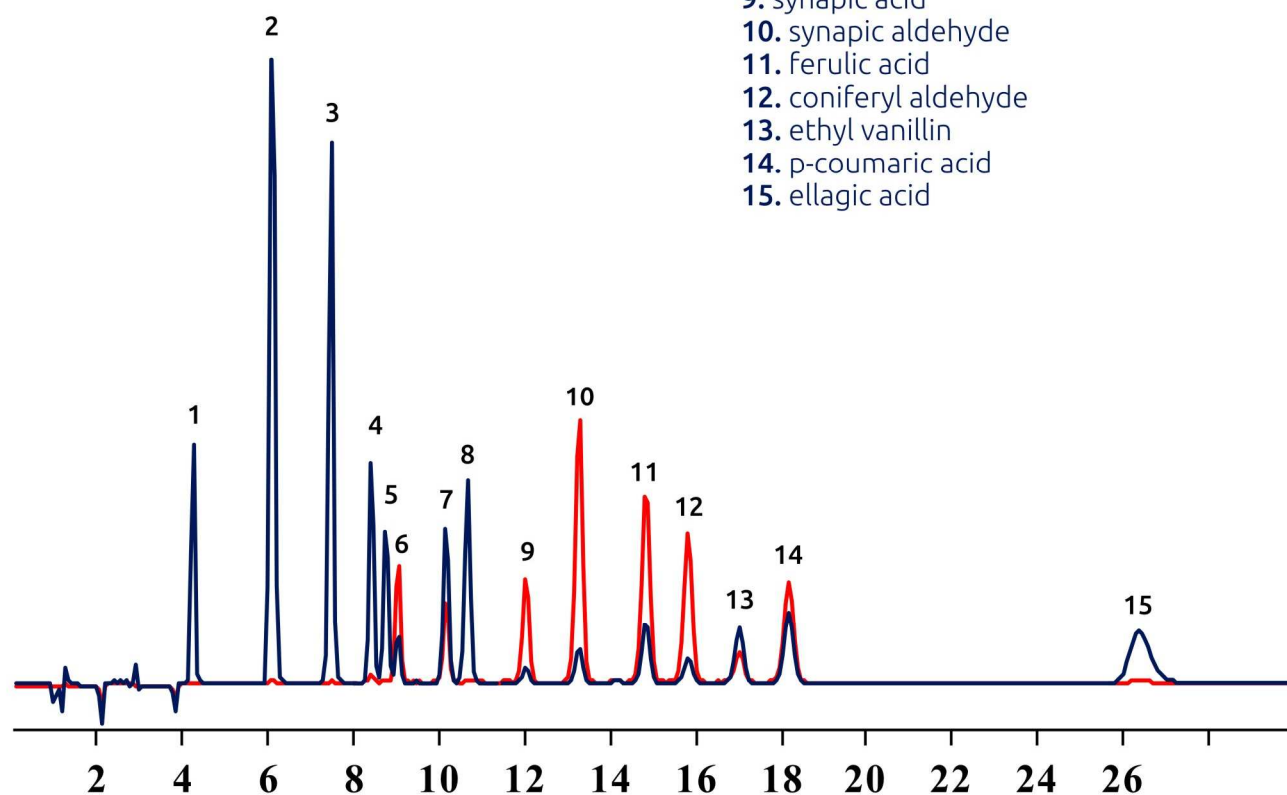
**Column Dimensions:** 250x4.6

**Mobile Phase:** Acetonitrile-(60mM aqueous  
KH<sub>2</sub>PO<sub>4</sub>)-H<sub>3</sub>PO<sub>4</sub> 23:77:0.1

**Flow Rate:** 1.0 ml/min

**Detection:** UV 270 nm, 330 nm

1. gallic acid
2. furfural
3. syringic acid
4. 5-methylfurfural
5. vanillic acid
6. syringic aldehyde
7. vanillin
8. 4-hydroxybenzoic acid
9. synapic acid
10. synapic aldehyde
11. ferulic acid
12. coniferyl aldehyde
13. ethyl vanillin
14. p-coumaric acid
15. ellagic acid



## HPLC separation of water soluble vitamins on NanoSpher WSVitamins HILIC

**Stationary Phase:** NanoSpher WSVitamins HILIC (3 $\mu$ m)

**Column Dimensions:** 250x4

**Mobile Phase:** Acetonitrile-(50mM aqueous NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub>)-  
H<sub>3</sub>PO<sub>4</sub> 70:30:0.3

**Flow Rate:** 1.1 ml/min

**Detection:** UV 260 nm, 300 nm

**P.** Rutin

**B2.** Riboflavin

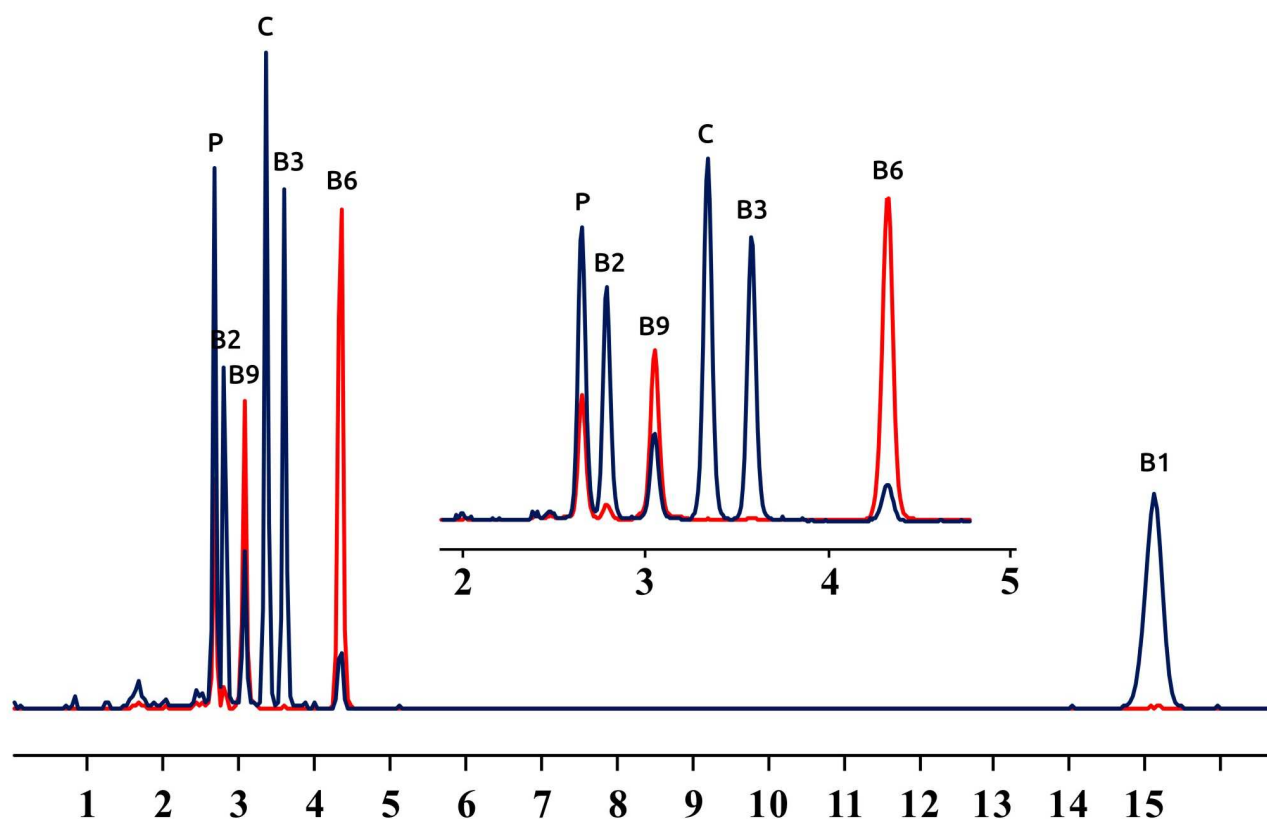
**B9.** Folic acid

**C.** Ascorbic acid

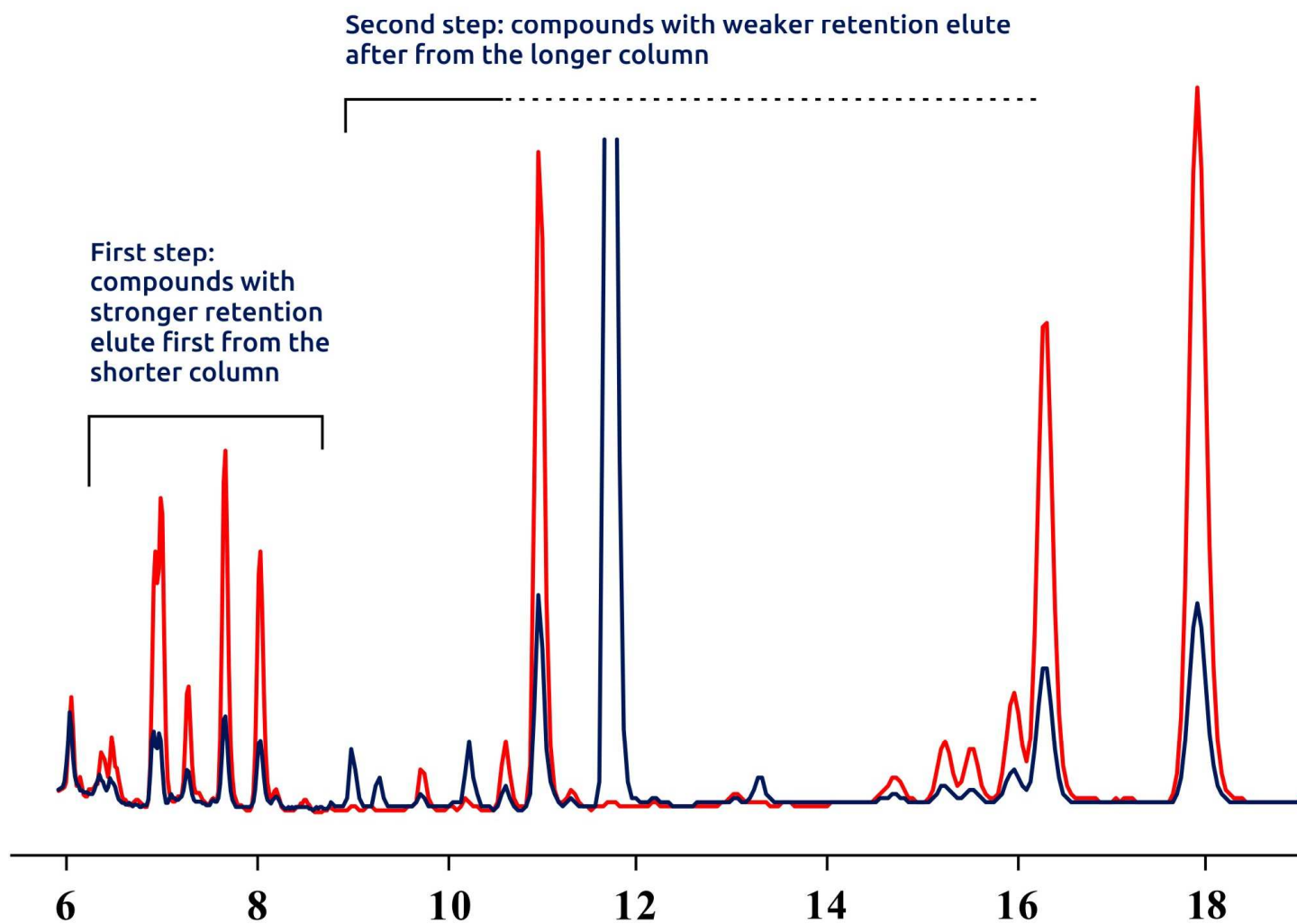
**B3.** Nicotinamide

**B6.** Pyridoxine

**B1.** Thiamine



## Separation of coffee caffeoylquinic acids using column switching HPLC setup







## **Development of new HPLC methods Improvement of older HPLC methods**

You pay for ready-to-use applications  
Targeted applications  
Isocratic elution  
Standard detectors (UV, FLD, RID)  
LC modes: RP, HILIC, IC, NP, SEC  
Mixed LC modes: RP/HILIC, RP/IC, RP/CT

### **Corporate HPLC courses**

Tunable schedule and list of topics  
Levels from starter to proficiency  
Solving problems on-line  
Developing HPLC methods on-line



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