

## Analysis of 43 food additives (1)

Using a photo diode array detector and a fluorescence detector, 43 kinds of food additives were simultaneously analyzed and each component was selectively detected.

Fig.1 shows the chromatograms obtained at each wavelength with the photo diode array detector (MD) and the one with the fluorescence detector (FP).

13. isosteviol and 28. diphenyl that were not separated at 210 nm and 240 nm on the MD detector could be respectively detected at 270 nm and on the fluorescence detector.

Fig. 2 and Fig. 3 show the chromatograms of actual samples of carbonated drink. With Diet Coke, aspartame contained as an artificial sweetener was detected.

**Keywords:** 1. Food additives, 2. STD mixture Coke, 3. ODS, 4. PDA, 5. FL

### Conditions:

Column:	CrestPak C18T-5				
Eluent A:	0.3% $H_3PO_4$				
Eluent B:	$CH_3CN$				
Time(min)	0	20	40	50	50.1
A(%)	95	75	20	20	95
B(%)	5	25	80	80	5
1cycle	65min				
Wavelength range:	200-650nm (MD-910)				
Wavelength program:	Fig.1 (FP-920)				
Flow rate:	1.0ml/min				
Column temperature:	40 degree celsius				
Injection volume:	10ul				
Sample:	STD mixture Coke				

### Vitamin

1. Vitamin A (palmitate)
2. Vitamin B1 (thiamine nitrate)
3. Vitamin B2 (riboflavin)
4. Vitamin B12 (cyanocobalamin)
5. Wodium erythorbate
6. Ascorbic acid palmitic ester

### Artificial sweeteners

7. Aspartame
8. Dipotassium glycyrrhizinate
9. Saccharin sodium
10. Acesulfame-K
11. Stevioside
12. Rebaudioside A
13. Isosteviol

### Antioxidants

14. EDTA·2Na
15. Butylhydroxyanisol (BHA)
16. Propyl gallate (PG)
17. Nordihydroguaiaretic acid (NDGA)
33. 2,4,5- tri-hydroxy-butyrophenone (THBP)
34. tert- butyrophenone (TBHQ)
35. Octyl gallate(OG)
36. Dodecyl gallate (DG)
37. 4-hydroxymethyl-2,6-di-tert-butyl phenol

### Preservatives

23. Sorbic acid
24. Parahydroxybenzoate
25. Parahydroxybenzoate-Et
26. Parahydroxybenzoate-Pr
27. Parahydroxybenzoate-Bu

### Fungicides

28. Diphenyl (DP)
29. O-phenylphenol (OPP)
30. Thiabendazole (TBZ)
31. Imazalil

### Others

32. Caffeine

### Tar dye

33. B1
34. B2
35. G3
36. R2
37. R3
38. R102
39. R104-1
40. R105-1
41. R106
42. Y4
43. Y5

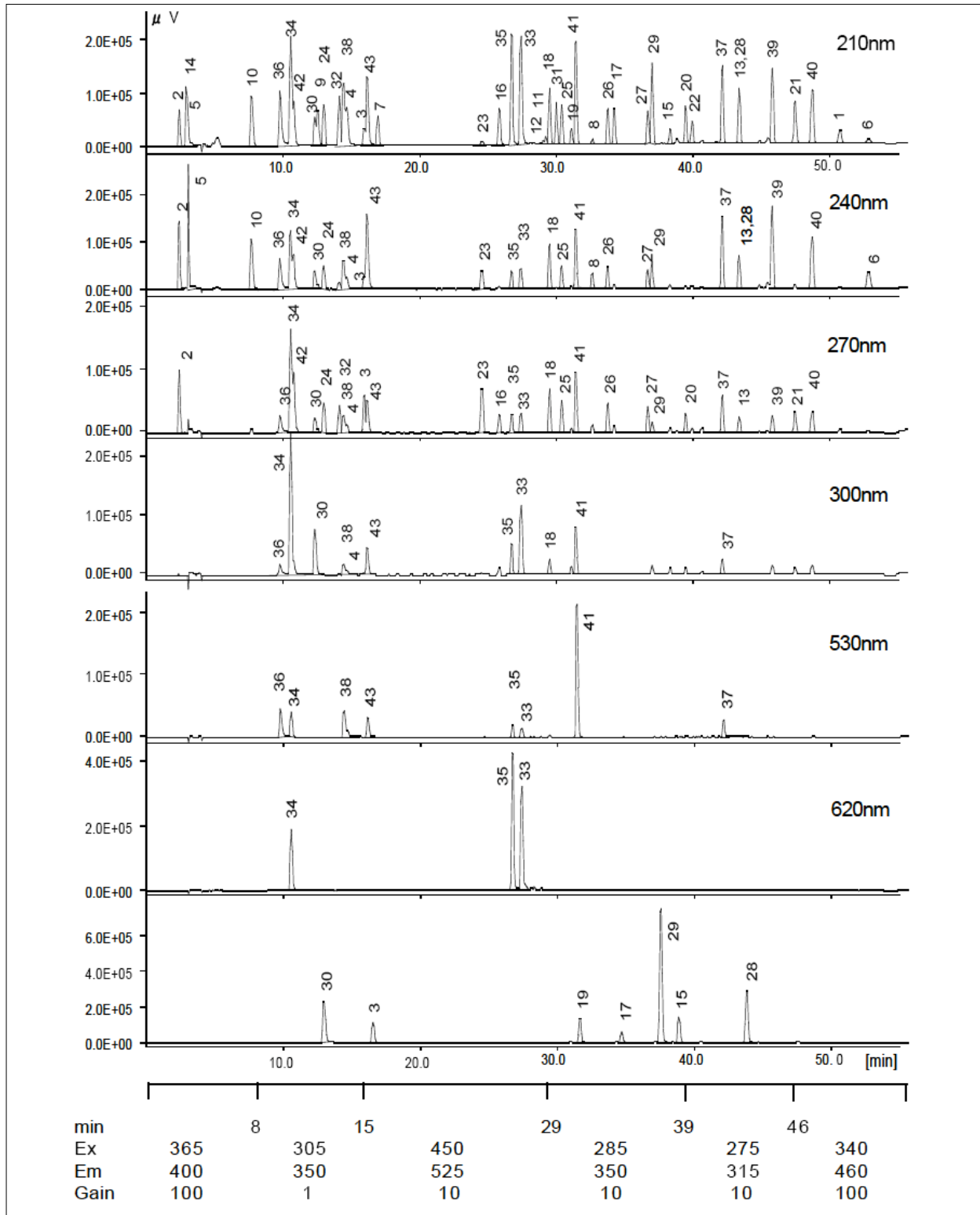


Fig.1 Chromatograms of food additives

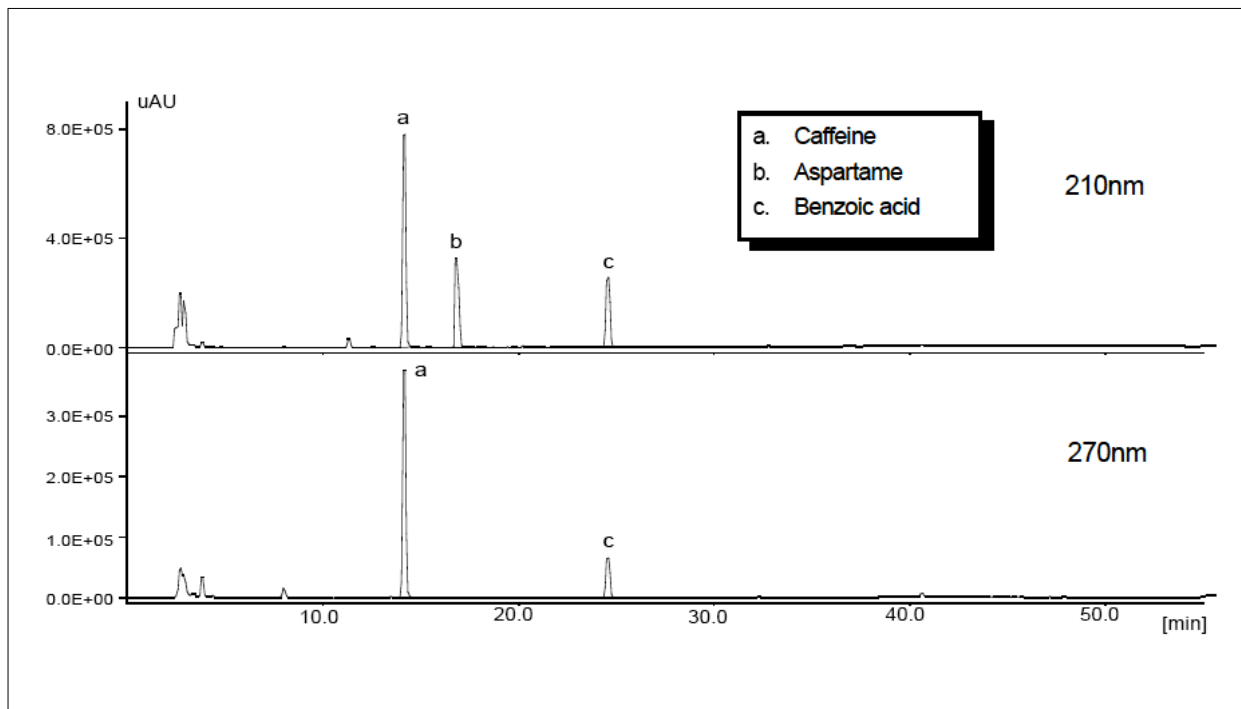


Fig.2 Chromatograms of Diet coke, STD mixture

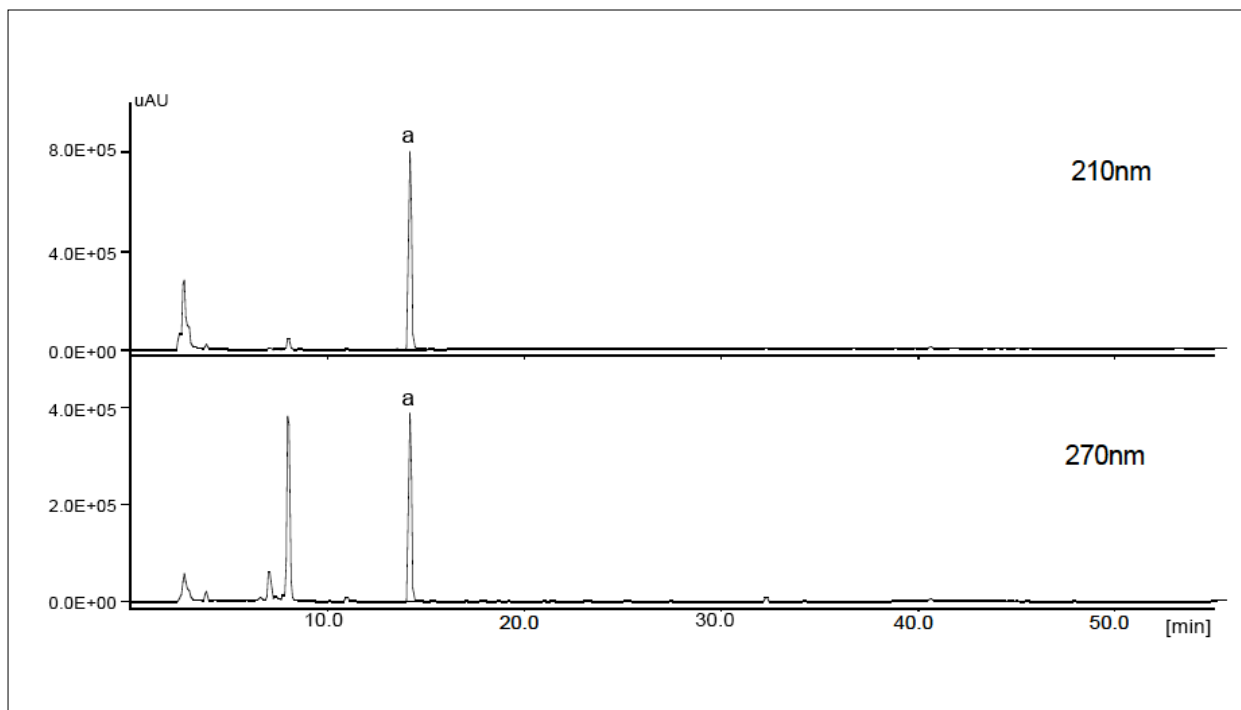


Fig.3 Chromatograms of Coke, STD mixture