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GsBP-5MS Comparisons

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Comparison Conditions

- Part 1: GC-FID using SSL inlet (splitless mode)
  - Analysis of test mixtures
  - Comparison with 30 m x 0.25 mm ID x 0.25 µm HP-5MS UI
- Part 2: GC-MS using cool on-column inlet
  - Analysis of test mixtures
  - Comparison with 30 m x 0.25 mm ID x 0.25 µm HP-5MS UI

Part 1: GC-FID conditions

- Agilent 7890B GC
- Agilent ALS
- Injection: 1 µL, splitless, 300°C
- Oven: 50°C (1 min) – 10°C/min – 320°C (hold)
- 2 mL/min hydrogen, constant flow
- FID: 320°C, 40 mL/min H2, 400 mL/min air

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Part 1: GC-FID – test probes

1. n.alkanes
2. Grob test mixture
3. Mixture of fragrance allergens
4. Mixture of pharmaceuticals
5. Mixture of polycyclic aromatic hydrocarbons (PAHs)
6. Polarity mixture (pentachlorophenol, benzidines)
7. Bleed test (using PAH mixture)

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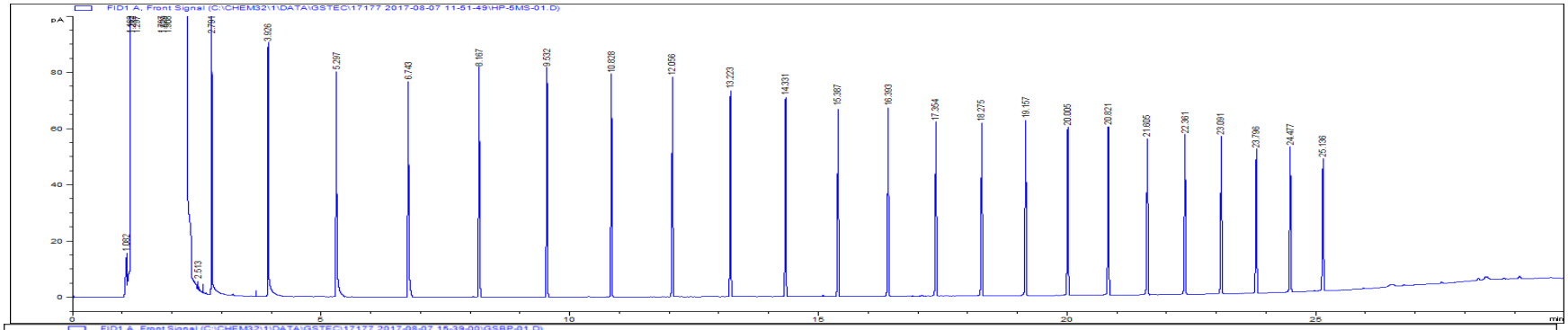
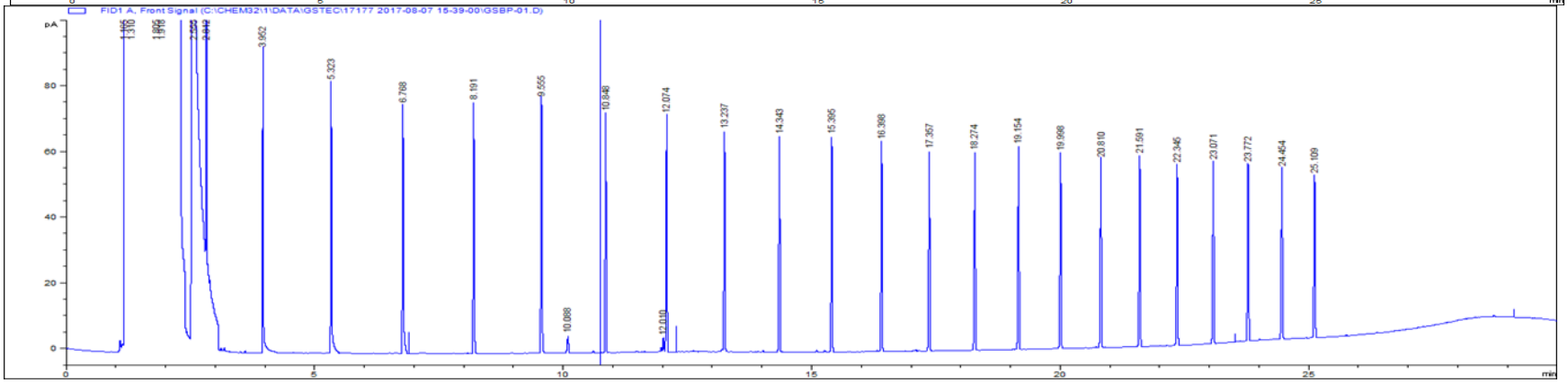
Test 1-1: analysis of alkane mixture





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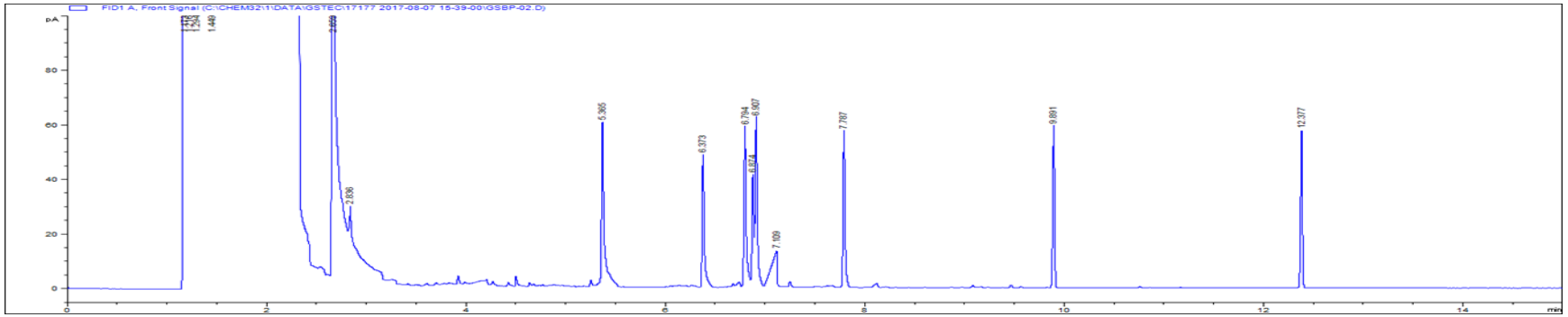
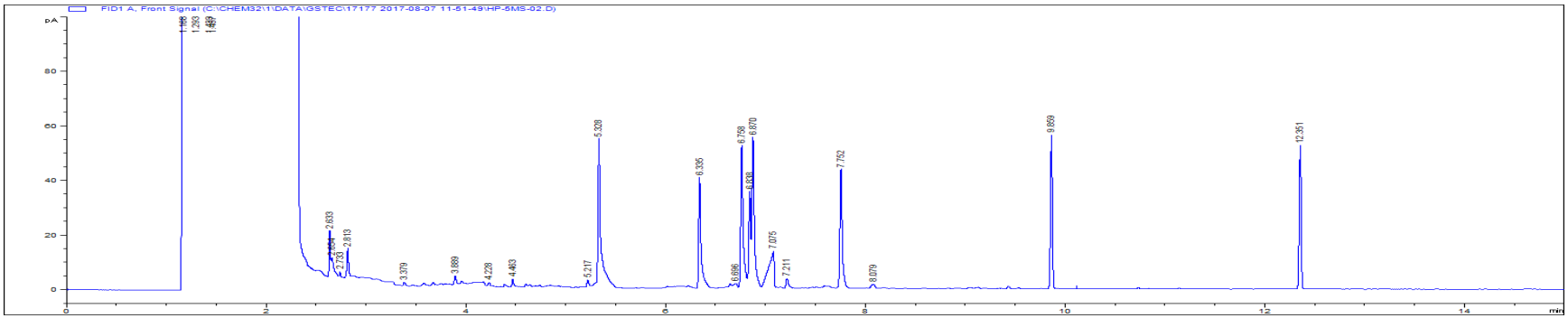
Test 1-2: analysis of Grob test mixture





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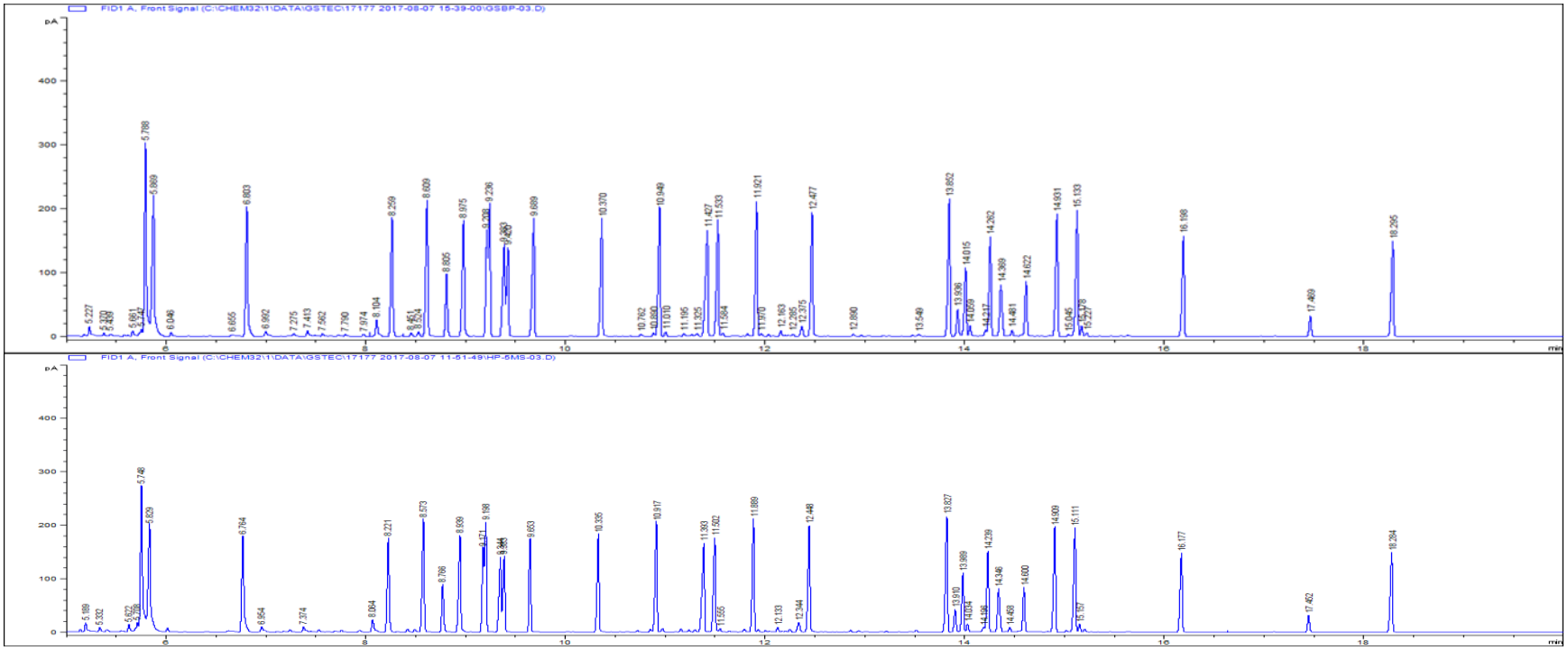
Test 1-3: analysis of allergen mixture



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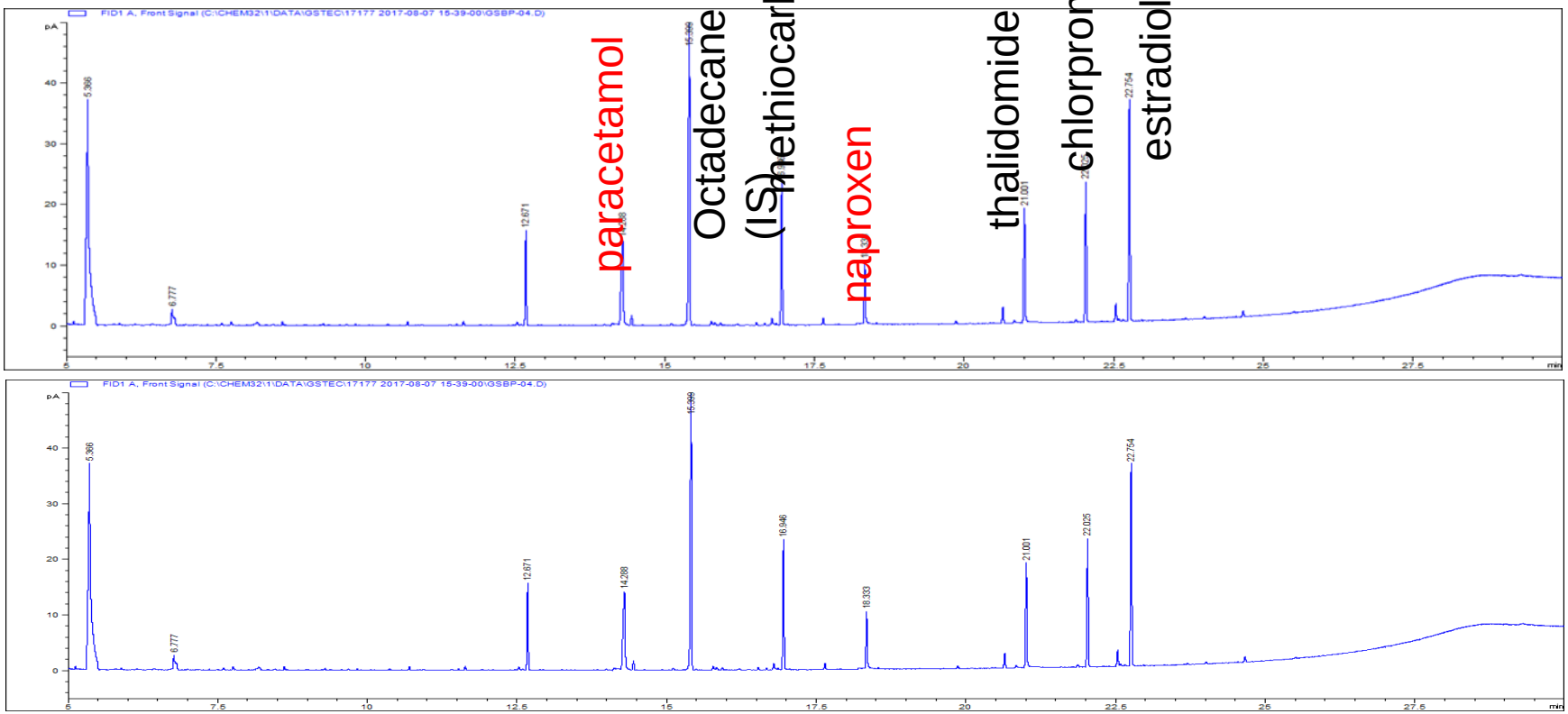
Test 1-4: analysis of pharma mixture



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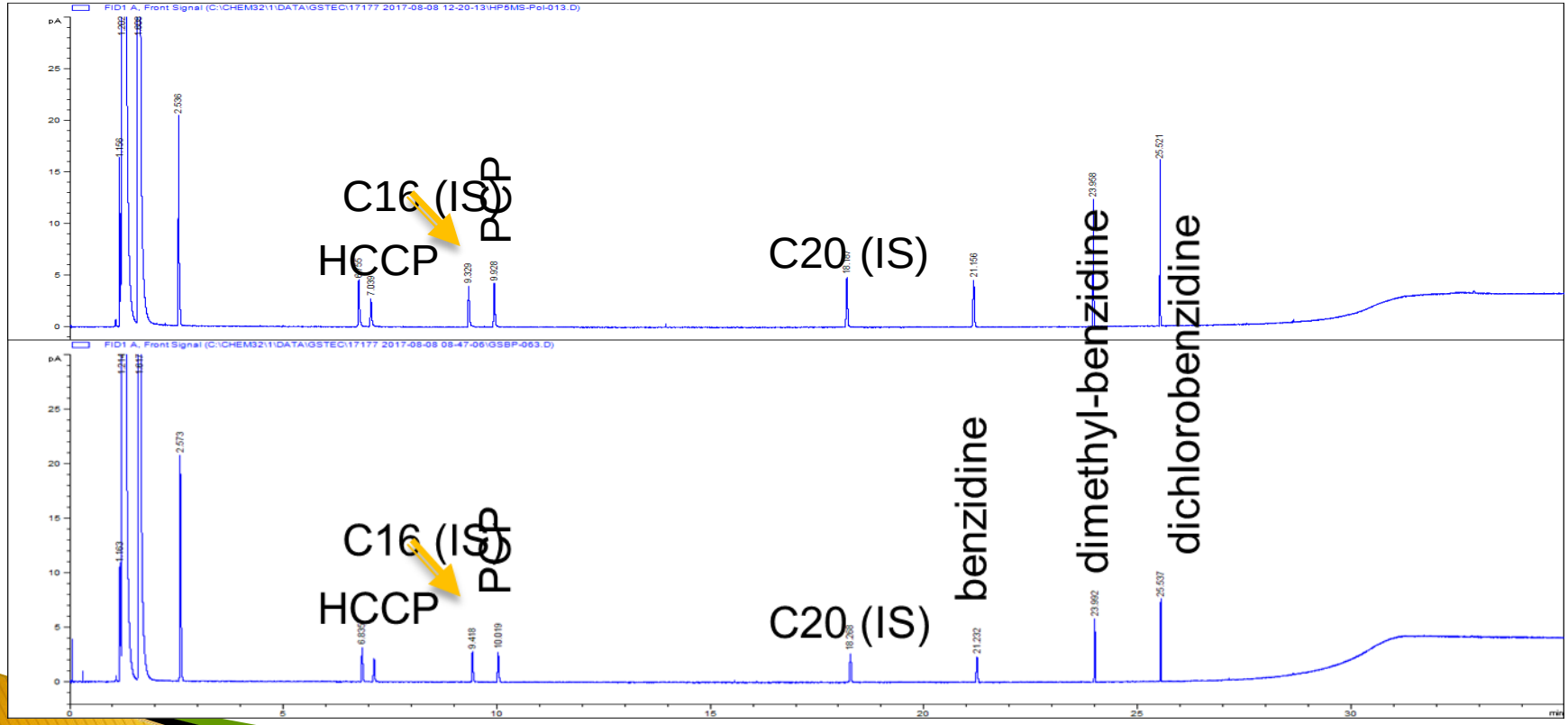
Test 1-6: analysis of polarity mixture



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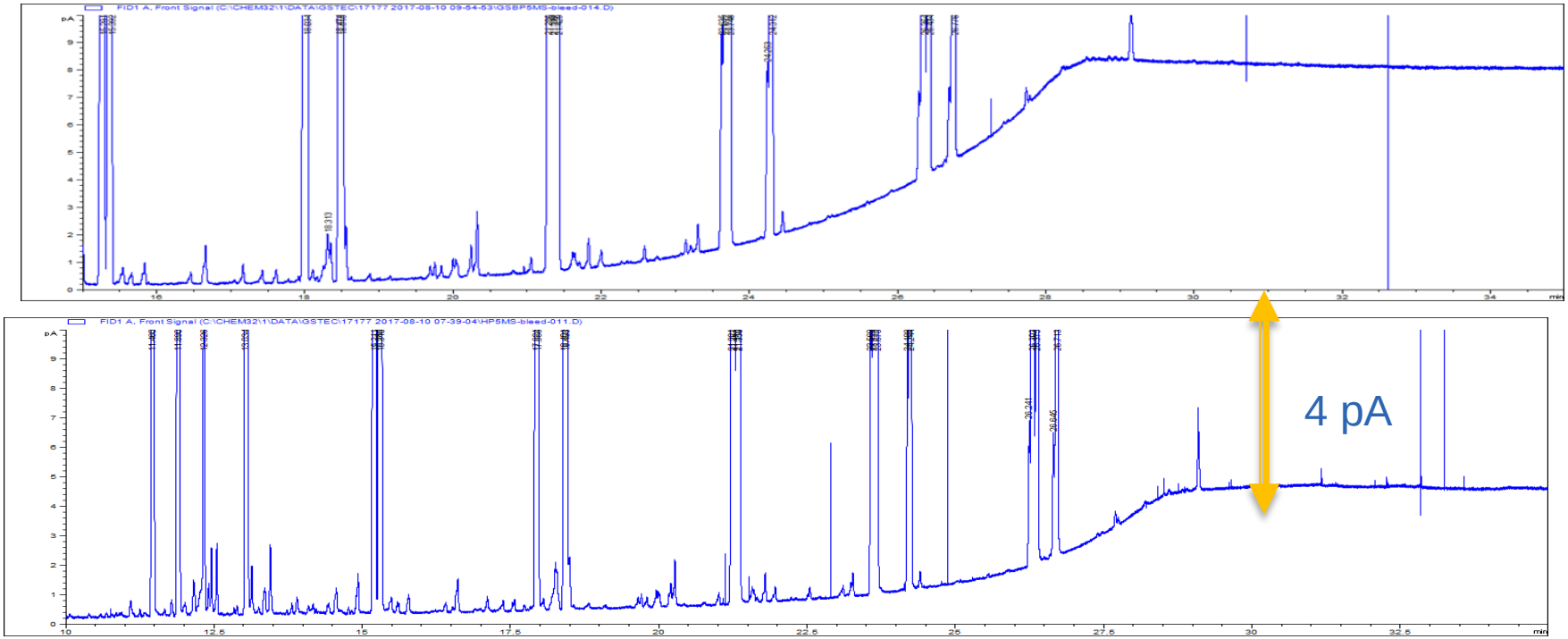
Test 1-7: bleed test - FID



Part 2: GC-MS conditions

- Agilent 7890B GC
- Agilent ALS
- Injection: 1 µL, splitless, 300°C
- Oven: 50°C (1 min) – 10°C/min – 320°C (hold)
- 2 mL/min hydrogen, constant flow
- FID: 320°C, 40 mL/min H2, 400 mL/min air

Part 2: GC-MS – test probes

1. Bleed test
2. Low level PAH mixture
3. Grob test mixture
4. Mixture of fragrance allergens
5. GC-MS system performance test mixture (containing pesticides and polar semi-volatiles)

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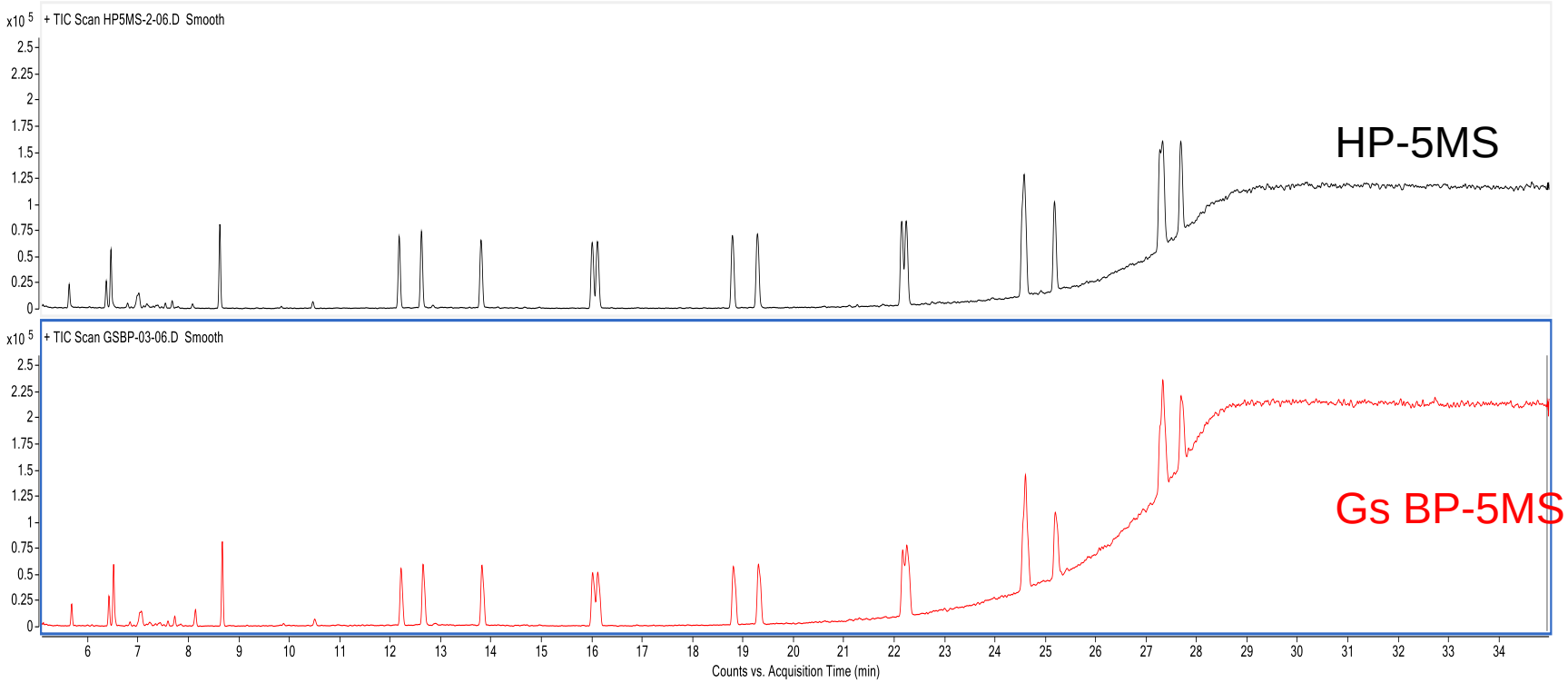
Test 2-2: PAH mixture – Gs-BP-5MS vs HP-5MS



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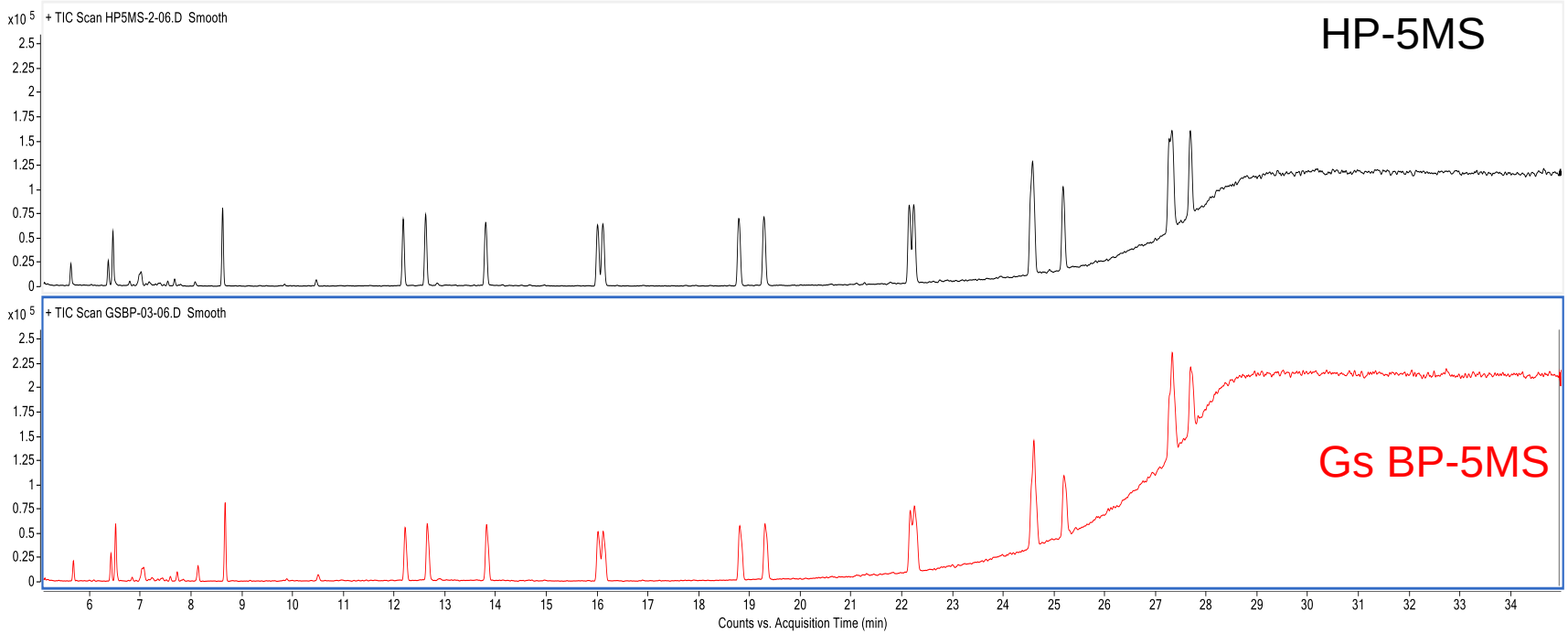
Test 2-2: PAH mixture – Gs-BP-5MS vs HP-5MS



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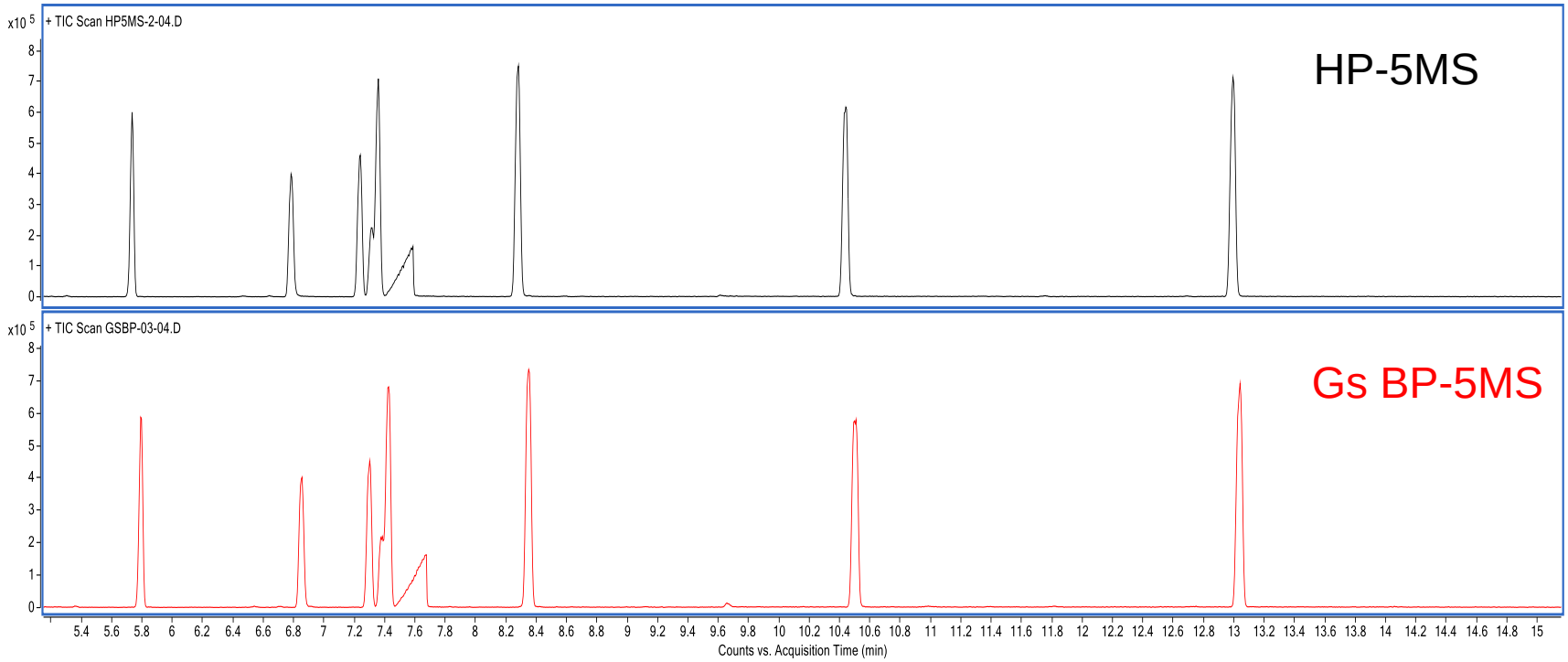
Test 2-3: Grob mixture – Gs-BP-5MS vs HP-5MS



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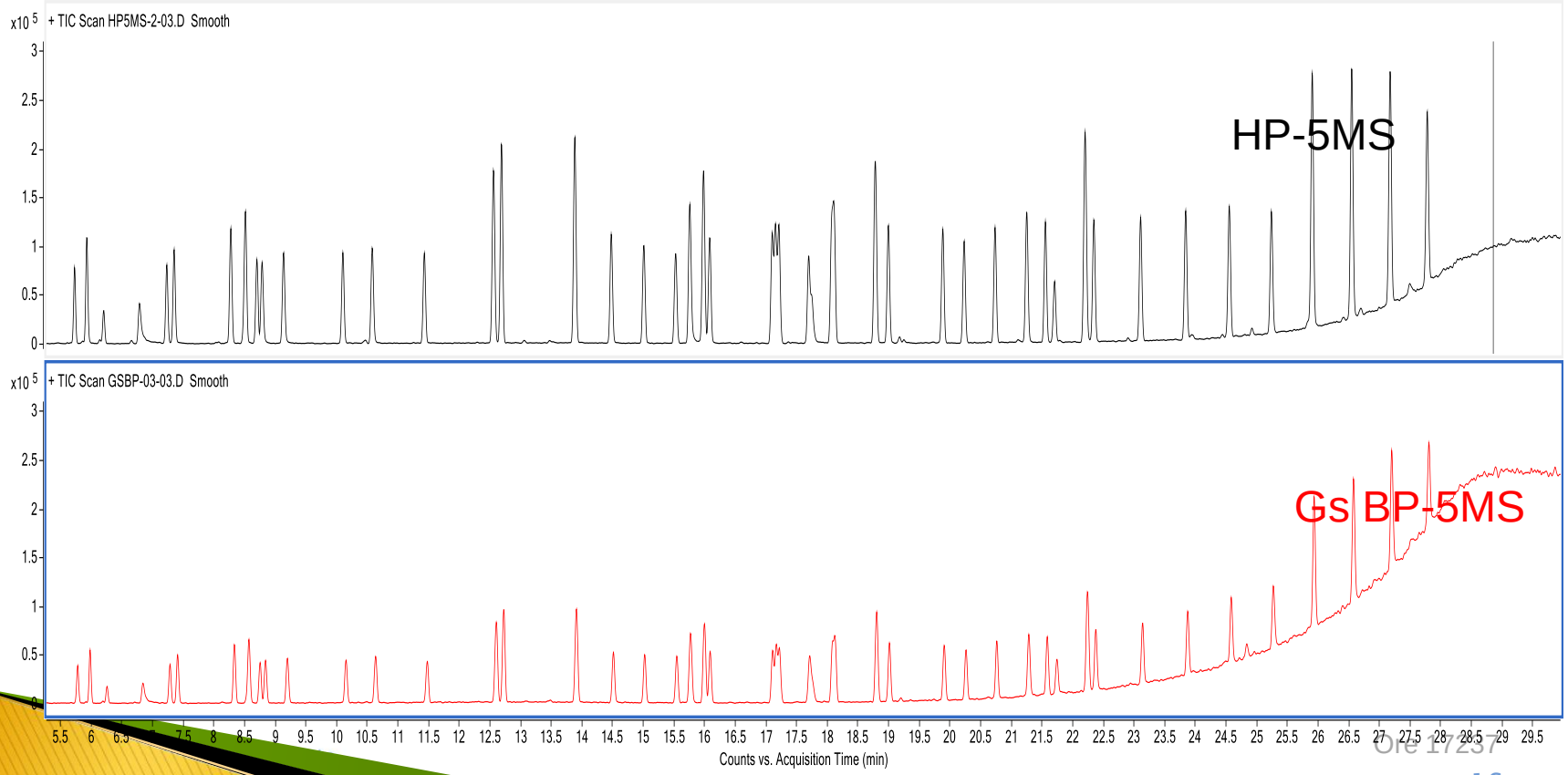
Test 2-5: Naginata mixture - Gs-BP-5MS vs HP-5MS



Test 2-5: Naginata mixture – Gs-BP-5MS vs HP-5MS (zoom)

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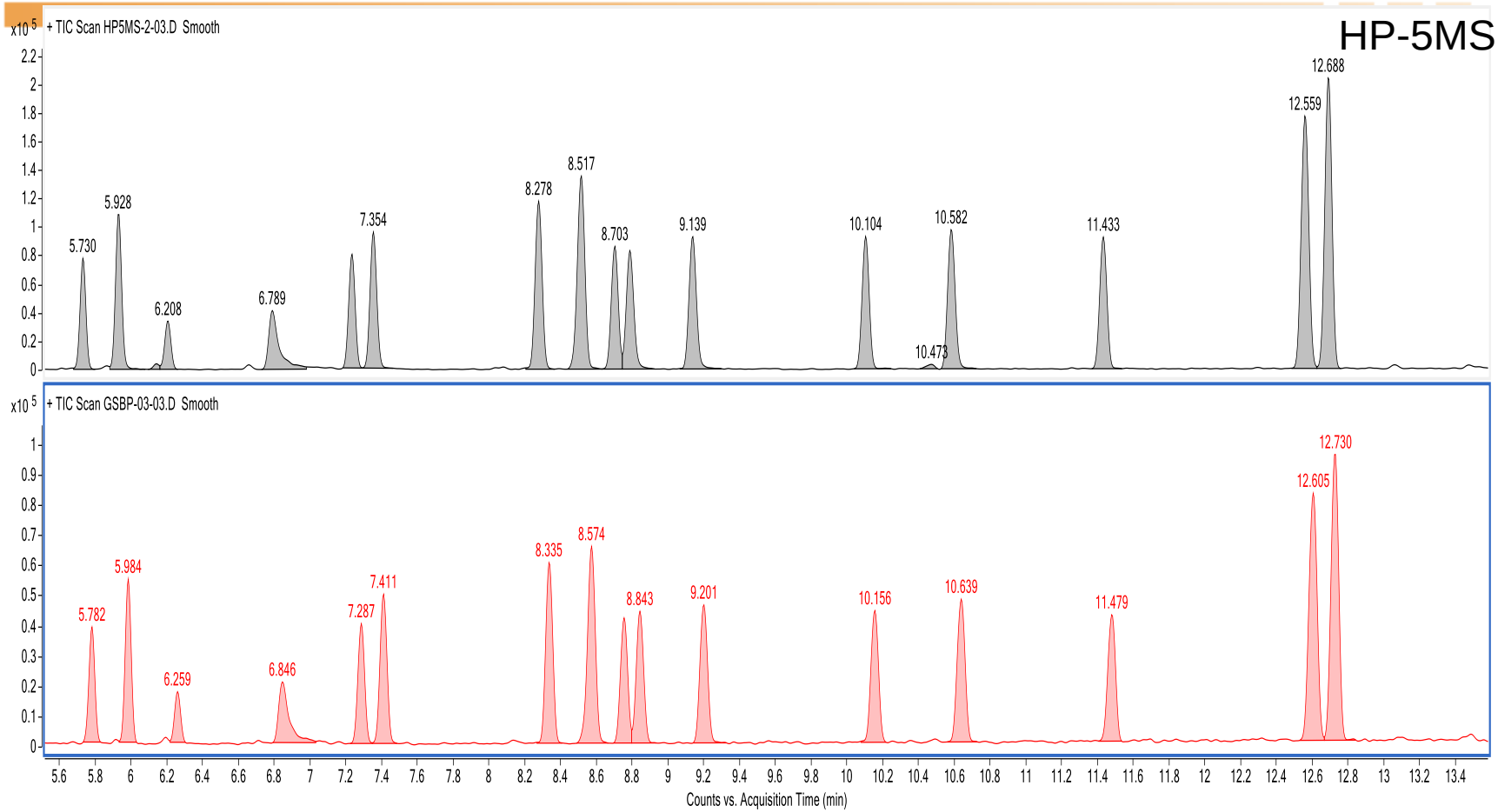

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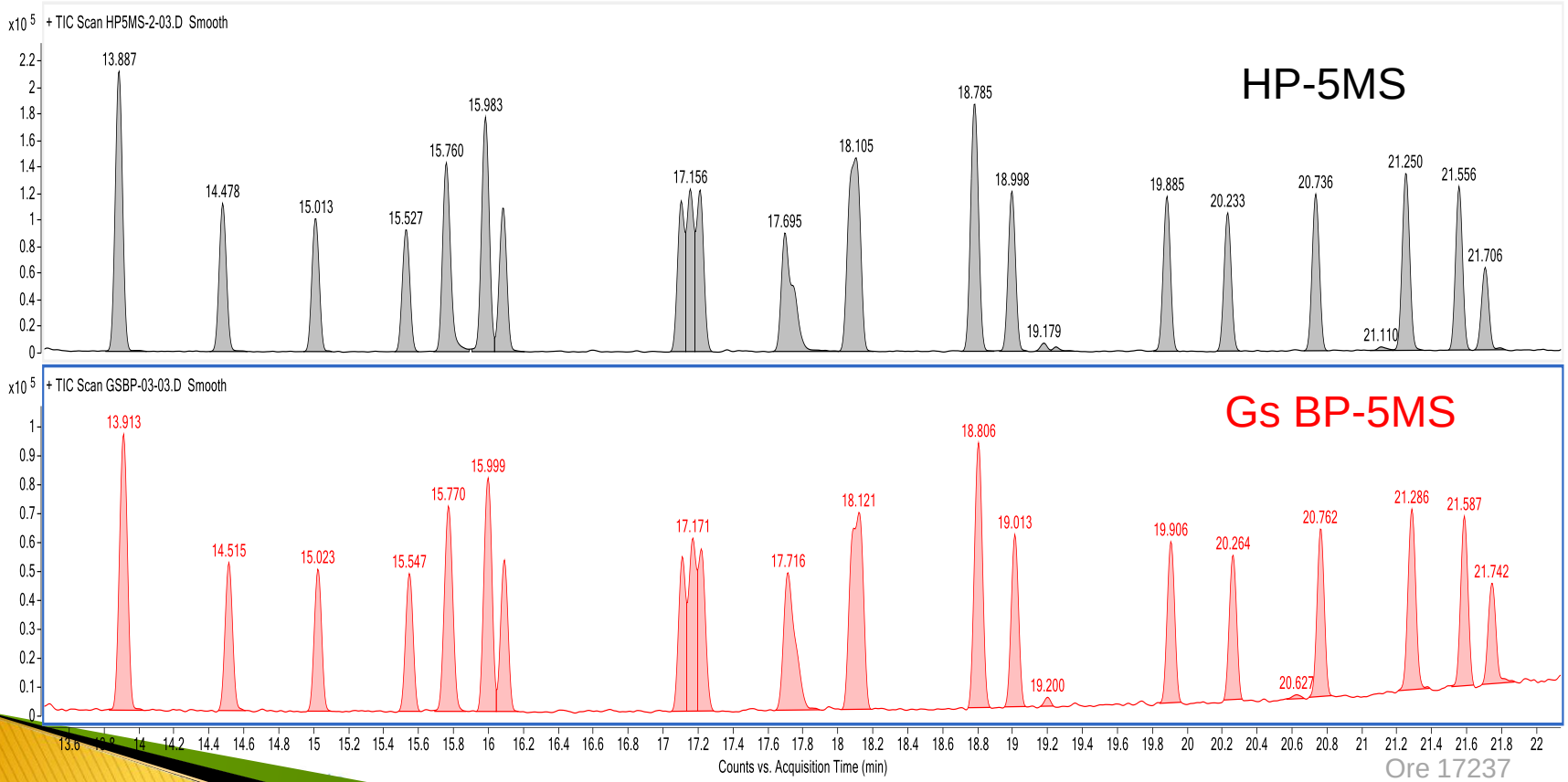
Test 2-5: Naginata mixture - Gs-BP-5MS vs HP-5MS (zoom)



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Test 2-5: Naginata mixture Relative response factors (RRF) versus d10-phenanthrene

ID	HP-5MSUI		Gs BP-5MS	
	RT	RRF	RT	RRF
2,6-dimethylphenol	7,354	0,463	7,411	0,520
2,6-dimethylaniline	8,278	0,597	8,335	0,637
2,6-dichlorophenol	8,786	0,451	8,843	0,485
benzothiazole	9,139	0,499	9,201	0,527
2,4-dichloroaniline	10,582	0,530	10,639	0,566
tributylphosphate	14,478	0,598	14,515	0,591
simazine	15,527	0,509	15,547	0,550
pentachlorophenol	15,760	0,842	15,770	0,918
d10-phenanthrene	15,983	1,000	15,999	1,000
chlorpyriphos-methyl	17,156	0,614	17,171	0,729
DFTPP	17,213	0,682	17,218	0,619
fenitrothion	17,695	0,774	17,716	0,852
2,4-dinitroaniline	17,747	0,000	17,800	0,000
chlorpyriphos-ethyl	18,105	1,316	18,121	1,366
d10-pyrene	18,785	1,086	18,806	1,115
isoxathion	20,233	0,557	20,264	0,559
benzylbutylphthalate	21,250	0,737	21,286	0,751
captafol	21,706	0,338	21,742	0,424

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Conclusions

- Equal selectivity/efficiency compared to HP-5MSUI.
- Very good inertness. For some pharmaceutical solutes even less adsorption than on HP-5MSUI.
- Slightly higher bleeding (compared to HP-5MSUI).