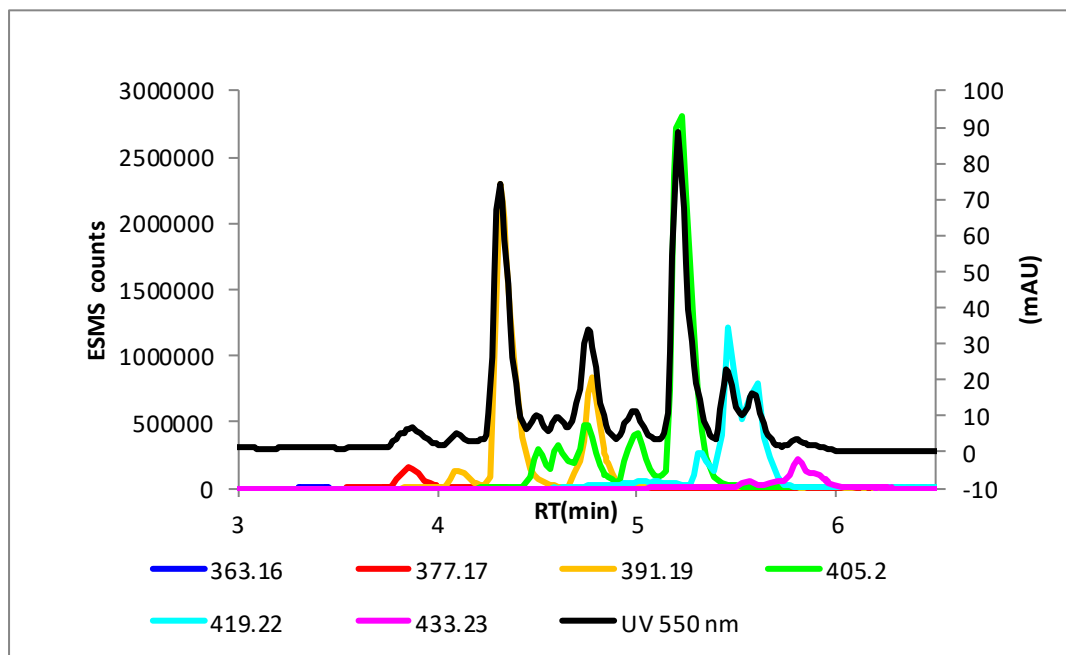


## Synthesis and analysis by liquid chromatography-mass spectrometry of a mauveine composition similar to museum stored mauveine

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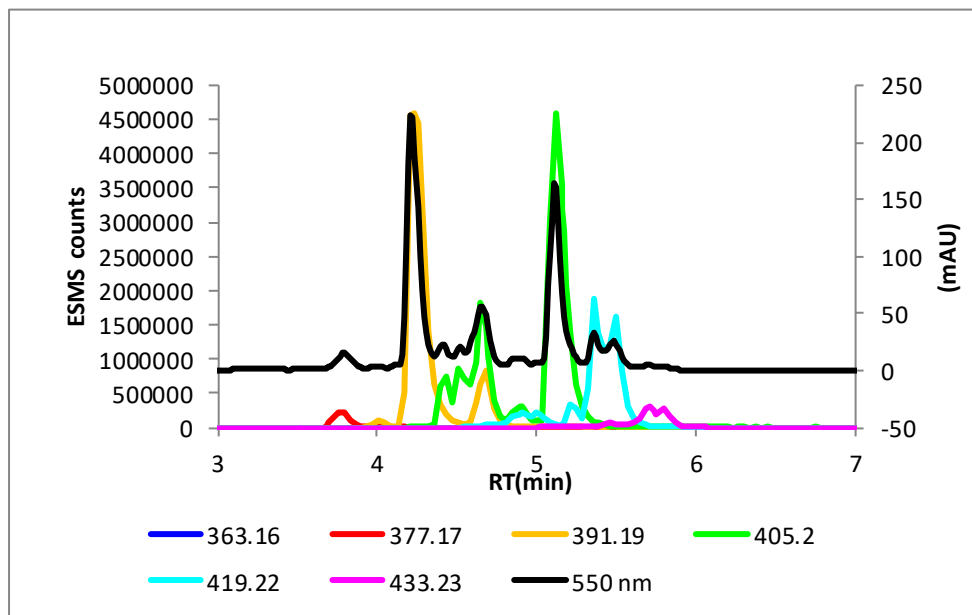
### Supplementary section.



**Figure S1** An expanded chart of mauveine from the Manchester Museum of Science and Industry. UV at 550 nm and extracted ion chromatograms.

min	363	377	391	405	419	433
3.9		1.9				
4.1			1.3			
4.3			21.1			
4.5				2.5		
4.6				3.4		
4.7				3.7		
4.8			7.7			
5.0				5.2		
5.2				28.3		
5.3					2.5	
5.5					9.3	
5.6					7.2	
5.8						1.8

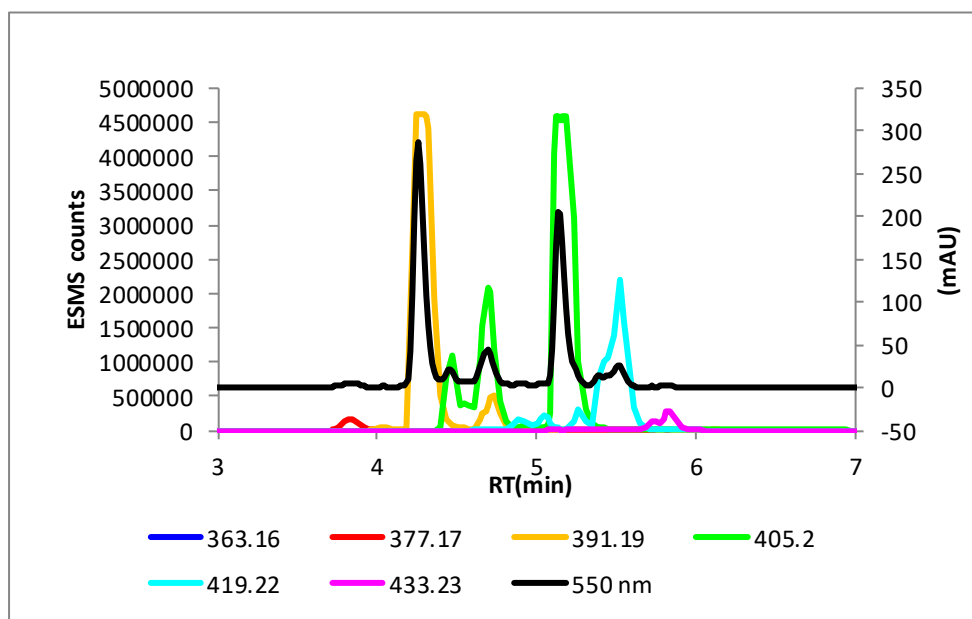
**Table S1** Retention time and molecular mass for Figure S1.



**Figure S2** Mauveine from the Bradford Colour Experience museum. UV at 550 nm and extracted ion chromatograms

min	363	377	391	405	419	433
3.8		1.4				
4.2			28.1			
4.4				3.4		
4.5				3.9		
4.7			4.0	7.5		
4.9				1.4	1.1	
5.1				28.1		
5.2					1.4	
5.4					8.7	
5.5					5.9	
5.7						1.1
5.8						1.2

**Table S2** Retention time and molecular mass for Figure S2.



**Figure S3** Mauveine from the Brent Museum and Archives museum near the WHP home town of Sudbury. UV at 550 nm and extracted ion chromatograms

min	m/z 363	m/z 377	m/z 391	m/z 405	m/z 419	m/z 433
4.3			31.8			
4.5				5.9		
4.7			2.6	8.8		
5.1				31.3		
5.3					1.0	
5.4					7.4	
5.5					6.5	
5.8						1.3

**Table S3** Retention time and molecular mass for Figure S3.



**Figure S4** A picture showing the first different coloured fractions collected by chromatography on silica gel of crude mauveine made using *N-tert-butyl-p-toluidine* hydrochloride **8**. The chromophores were eluted with aqNH<sub>3</sub>/EtOH. The colour change allows a good separation of some impurities and the two chromophores which elute just ahead of mauveine A in the chart. The purer mauveine is to the right.



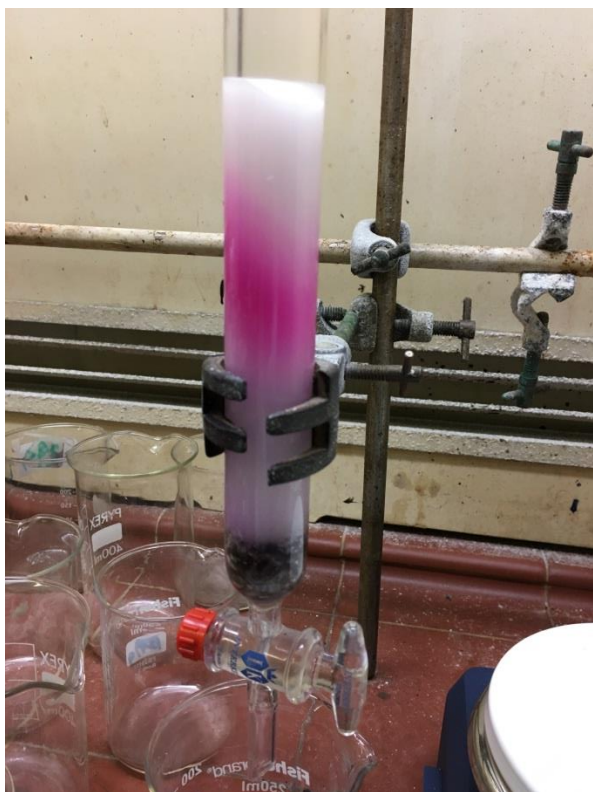
**Figure S5** The crude mauveine band at the start of the column.



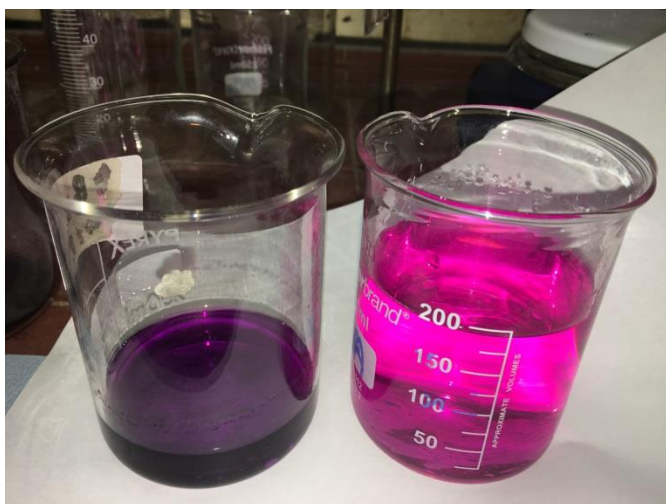
**Figure S6** The separation of the mauveine (purple) and *N-tert*-butylmauveine (red) bands.



**Figure S7** The separation of the mauveine (purple) and *N-tert*-butylmauveine (red) bands.



**Figure S8** The *N*-*tert*-butylmauveines (red band) are completely separated.



**Figure S9** The two colours. Mauveine (purple) and *N*-*tert*-butylmauveines (red/pink)