

Electronic Supporting Information for
A New Method for The Rapid Determination of Sodium Percarbonate in Aqueous Samples
Using a Modified HPLC Setup

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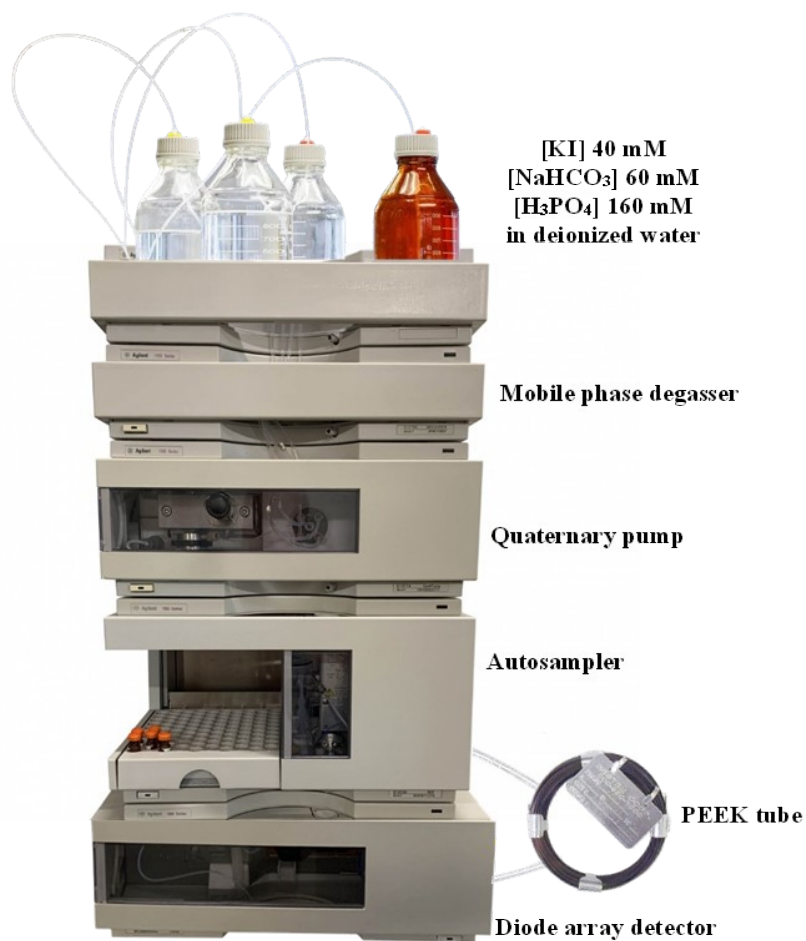


Fig. 1S. Modified HPLC setup for SPC quantification



Fig. 2S. Washing powder detergent “Vanish”

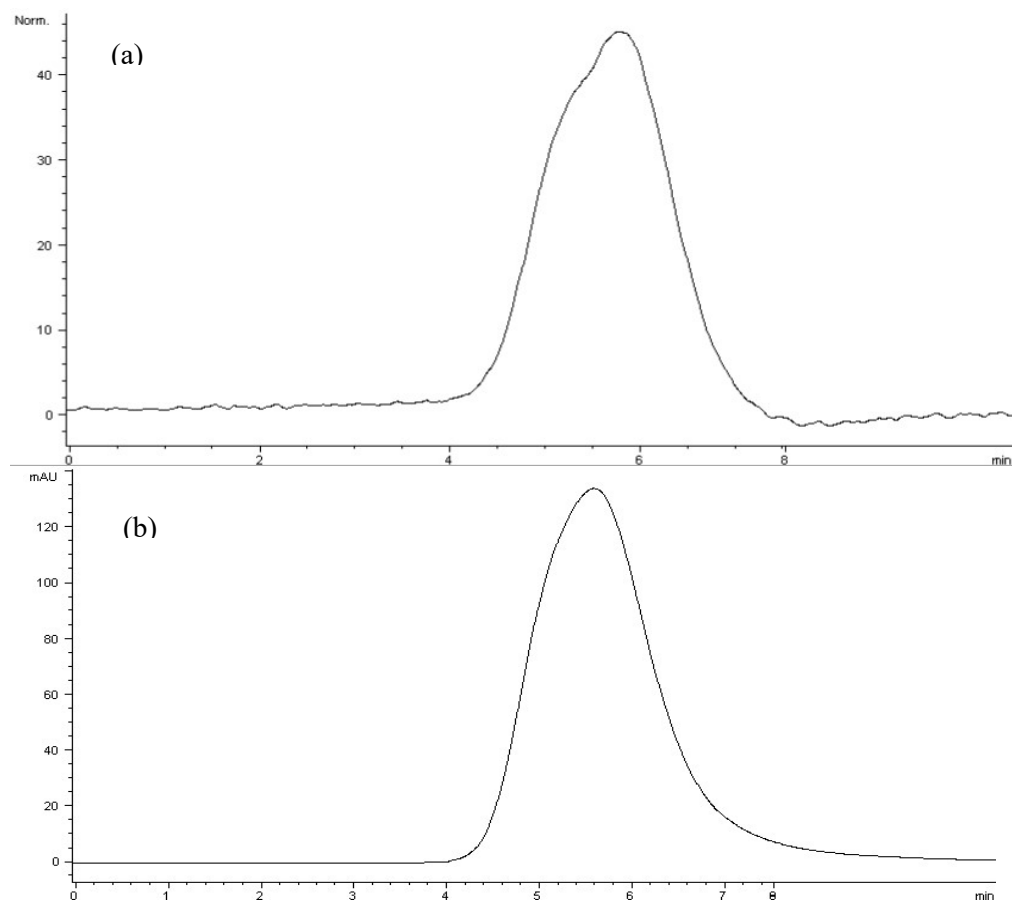


Fig. 3S. Chromatograms showing the peak of SPC in (a) Vanish detergent sample and (b) SPC standards

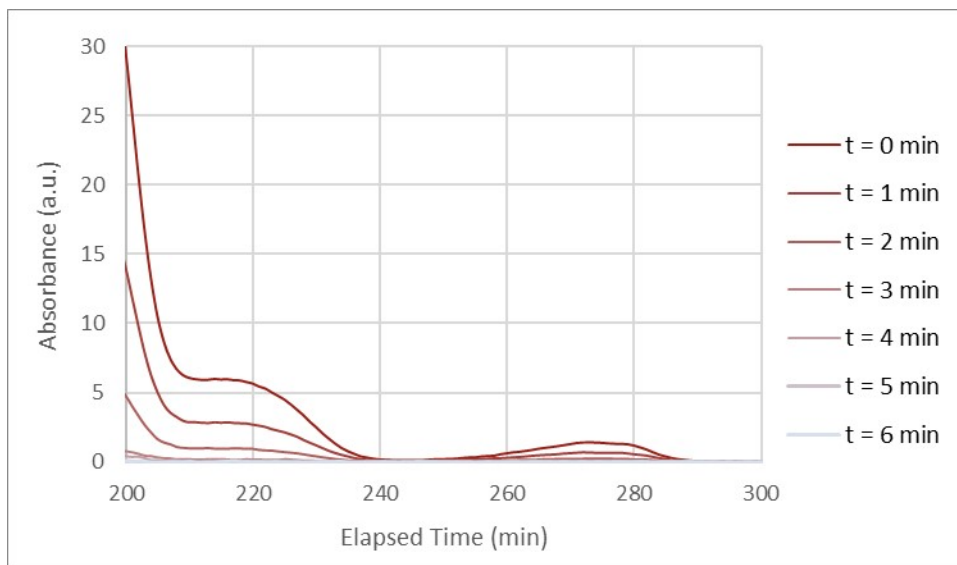


Fig. 4S. UV Spectra of Tramadol showing its degradation during AOP experiment

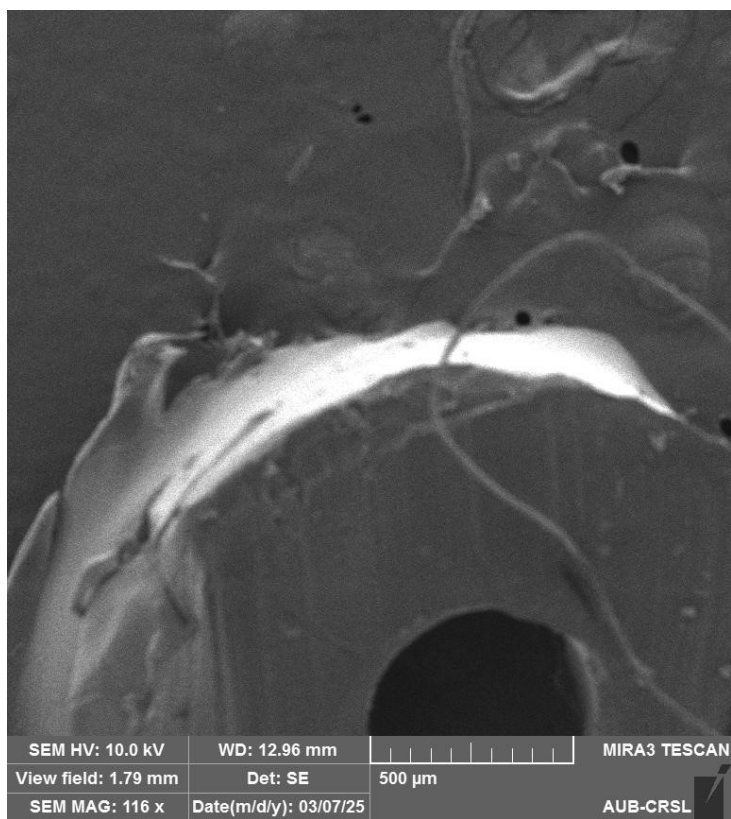


Fig. 5S. SEM image showing internal diameter of the used PEEK tube after more than 3000 samples.

Table 1S. Average cost per test for the iodometric titration technique

Chemicals used	Chemical's price (for 1 gram in USD (\$))	Average cost of chemicals used per test in USD (\$)
Potassium permanganate	1.876 ²	6.187
Bismuth nitrate pentahydrate	5.207 ³	10.41
Manganese sulfate monohydrate	0.474 ⁴	1.896
Sulfuric acid	0.908 ⁵	222.5
Total average cost		240.99

Table 2S. Water quality parameters for the natural water matrices.

Parameters	Units	Spring water	Sea water
pH	-	7	8
Chemical Oxygen Demand (COD)	ppm	126	983**
Total coliforms	CFU	0	77
Fecal Coliforms	CFU	0	4
Turbidity	NTU	0.61	1
Total suspended solids* (TSS)	mg L ⁻¹	2	89
Total dissolved solids (TDS)		345	32600
Sulfate (SO ₄ ²⁻)		15	3600
Nitrates (NO ₃ ⁻)		41.5	2543
Hardness		160	6556

* ppm as NaCl

** Highly polluted sea water.

Table 3S. Composition of Washing powder detergent “Vanish”.

Substance	%(w/w)
Disodium carbonate, compound with hydrogen peroxide (2:3) ¹	$\geq 10 - \leq 30$
The reaction product of Benzenesulfonic acid, 4-C10-13-sec-alkyl derivatives and Benzenesulfonic acid, 4-methyl- and sodium hydroxide ¹	≤ 5

References

- 1 Reckitt Benckiser Group, Safety Data Sheet for Vanish Oxi Action Powder Fabric Stain Remover, 2019. <https://www.rb-msds.com.au/uploadedFiles/pdf/Vanish%20Napisan%20Oxi%20Action%20Powder-Gentle-v2-D8341588.pdf>, (accessed 6 March 2025).
- 2 Sigma-Aldrich, Potassium permanganate 99.0%, <https://www.sigmaaldrich.com/LB/en/product/sigald/223468>, (accessed 17 July 2024).
- 3 Sigma-Aldrich, Bismuth nitrate pentahydrate 99.999%, [https://www.sigmaaldrich.com/LB/en/search/bismuth-nitrate-pentahydrate?focus=products&page=1&perpage=30&sort=relevance&term=Bismuth nitrate pentahydrate&type=product](https://www.sigmaaldrich.com/LB/en/search/bismuth-nitrate-pentahydrate?focus=products&page=1&perpage=30&sort=relevance&term=Bismuth%20nitrate%20pentahydrate&type=product), (accessed 17 July 2024).
- 4 Sigma-Aldrich, Manganese sulfate monohydrate, <https://www.sigmaaldrich.com/LB/en/product/sigald/221287>, (accessed 17 July 2024).
- 5 Sigma-Aldrich, Sulfuric acid 99.999%, <https://www.sigmaaldrich.com/LB/en/product/aldrich/339741>, (accessed 17 July 2024).