Electronic Supplementary Material (ESI) for RSC Advances

A new resonance Rayleigh scattering method for the determination of trace O_3 in air using rhodamine 6G as probe

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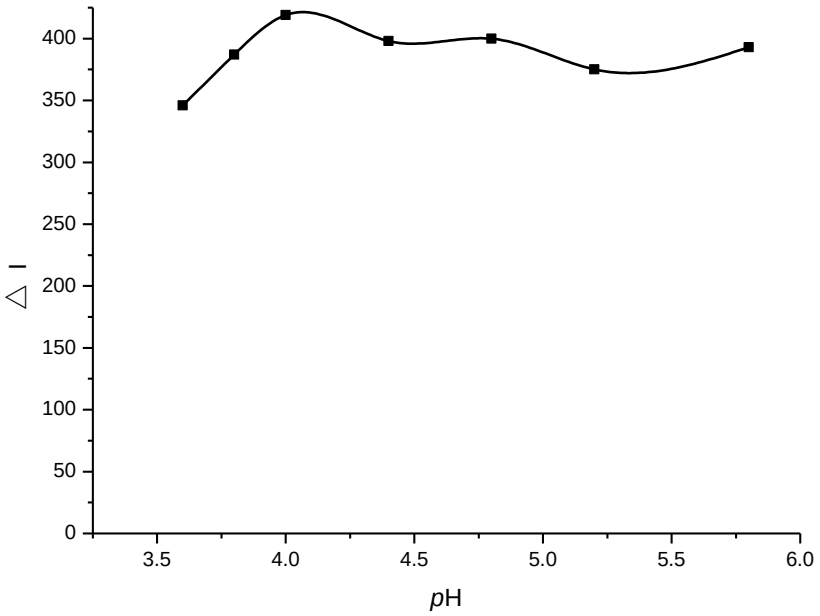

Fig. 1S Effect of HAc-NaAc buffer solution pH value on the ΔI

The RRS intensity at 418 nm of Rh6G associated particle (2.0mM BKI, 66.7μM Rh6G) in the presence of 20μM O_3.

Table 1S Comparison of some spectrophotometric methods for O_3

Methods	Principle	LR(μM)	DL (μM)	Comments	Ref.
Spectrophotometry	$O_3+3I^-+2H^+=I_3^-+O_2+H_2O$	5-70	5	Simple, low sensitivity	2
Flow injection spectrophotometry	Based on the iodine-starch coloring at 580 nm.	8.3-220	8.3	Rapid, low sensitivity.	3
Spectrophotometry	Using the reaction between O_3 and bis(terpyrldine)Fe(II).	1-400	1	Simple, sensitive.	28
Spectrophotometry	Based on sodium indigo disulfonate fading at 610 nm.	2.5-62.5	2.5	Simple, sensitive.	29
RRS	Based on the RRS effect of $(Rh6G\text{-}I_3)_n$ particle at 418 nm.	0.25-25	0.07	Sensitive, selective and rapid.	This method

Table 2S Effect of coexistence ions

Coexistent ions	**Tolerance (mol/L)**	**Relative error (%)**	**Coexistent ions**	**Tolerance (mol/L)**	**Relative error (%)**
NO_2^-	**3.2×10^{-4}**	**5.0**	**H_2O_2**	**3.2×10^{-4}**	**6.0**
Mn^{2+}	**7.0×10^{-4}**	**-4.8**	**Ba^{2+}**	**6.0×10^{-4}**	**-5.4**
Cu^{2+}	**6.0×10^{-4}**	**-6.0**	**Fe^{3+}**	**8.5×10^{-5}**	**4.5**
Ca^{2+}	**6.5×10^{-4}**	**-5.2**	**Zn^{2+}**	**8.0×10^{-5}**	**-4.9**
Mg^{2+}	**6.5×10^{-4}**	**-4.2**	**SO_3^{2+}**	**8.0×10^{-5}**	**-4.8**