Figures' Caption

Fig. 1. Stopped-FI system for the determination of bromide. S: sample injection valve, P: double plunger pump, W: waste, Carrier: 0.011 mol l^{-1} NaCl, Mixed reagent: $8x10^{-5}$ mol l^{-1} methylene blue (MB), 2.5 mol l^{-1} H_2SO_4 and 0.6 mol l^{-1} NaCl, Oxidizing agent: 2 mol l^{-1} H_2O_2. The system was carried out in temperature-control room (25°C).

Fig. 2. Stopped-FI peaks for standard bromide solutions. (1) to (5) standard bromide solutions of 0, 0.8, 1.6, 2.4, 3.2 μg ml^{-1}, respectively. Traveling time (T_1) 100 s, stopping time (T_2) 120 s and washing time (T_3) 100 s.

Fig. 3. Dependence of the stopping time on analytical signal of standard bromide (solid line) and linear correlation coefficient (dash line). Peak heights correspond to the absorbance differences between the baseline and the minimums of the hollows. (1) to (5) standard bromide solutions of 0, 0.8, 1.6, 2.4 and 3.2 μg ml^{-1}, respectively. Conditions: MB $8x10^{-5}$ mol l^{-1}, H_2SO_4 2.5 mol l^{-1}, NaCl 0.6 mol l^{-1}, H_2O_2 2 mol l^{-1}, flow rate of 1.5 ml min^{-1}, mixing coil length of 5 m and injection volume of 200 μl.

Fig. 4. Effect of concentrations of chemicals on analytical signal. (1) to (5) standard bromide solutions of 0, 0.8, 1.6, 2.4 and 3.2 μg ml^{-1}, respectively. (a) effect of NaCl concentration (in mixed reagent) and (b) effect of H_2O_2 concentration.

Fig. 5. Effect of FI variables on analytical signal of blank (♦) and 2.4 μg ml^{-1} of standard bromide (■), and analysis time (▲). (a) effect of flow rate, (b) effect of mixing coil length and (c) effect of injection volume.

Fig. 6. Comparison of the bromide contents determined by the proposed method (n=3) and titration method (n=3).

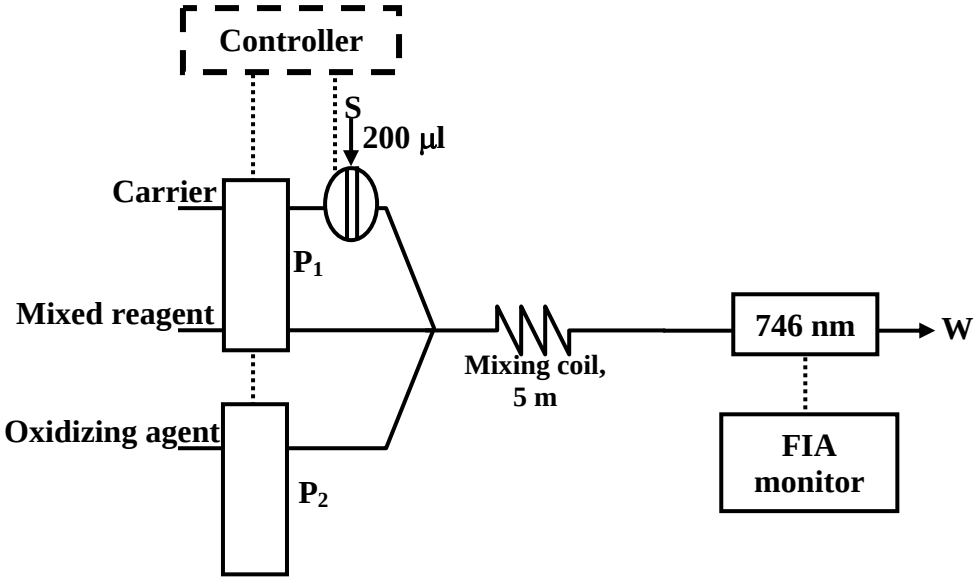
Controller
S
200 μl
Carrier
P1
Mixed reagent
Mixing coil,
5 m
746 nm
W
Oxidizing agent
P2
FIA
monitor

Fig. 1.

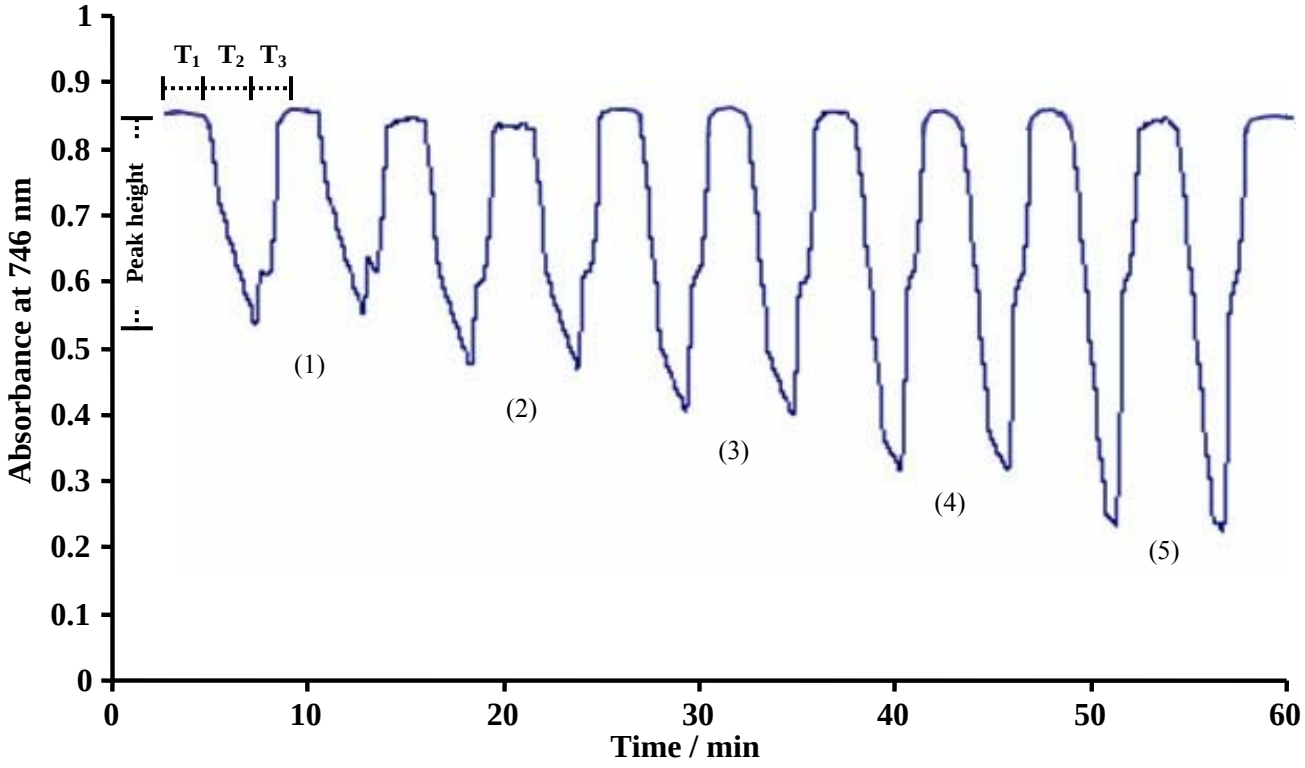
T1 T2 T3
Peak height
Absorbance at 746 nm
Time / min
(1)
(2)
(3)
(4)
(5)
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
10
20
30
40
50
60

Fig. 2.

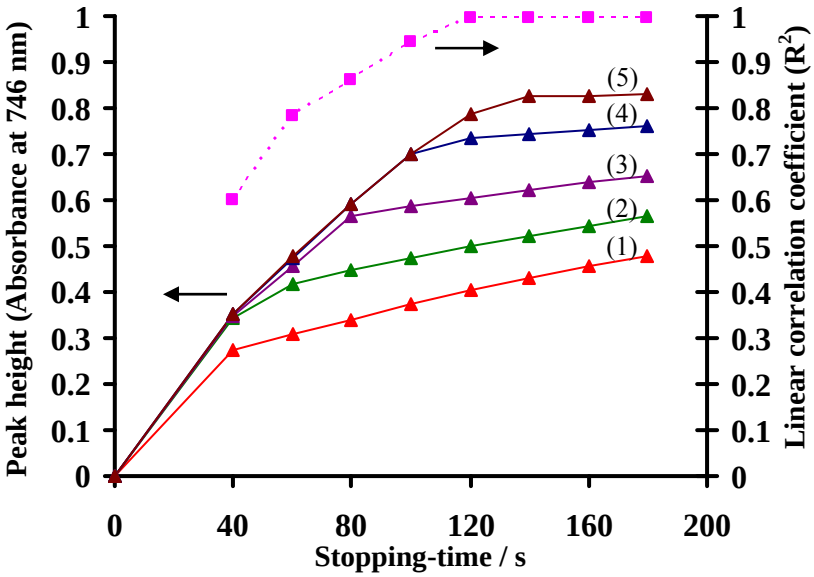
Peak height (Absorbance at 746 nm)
Linear correlation coefficient (R^2)
Stopping-time / s
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1
0
40
80
120
160
200
(5)
(4)
(3)
(2)
(1)

Fig. 3.

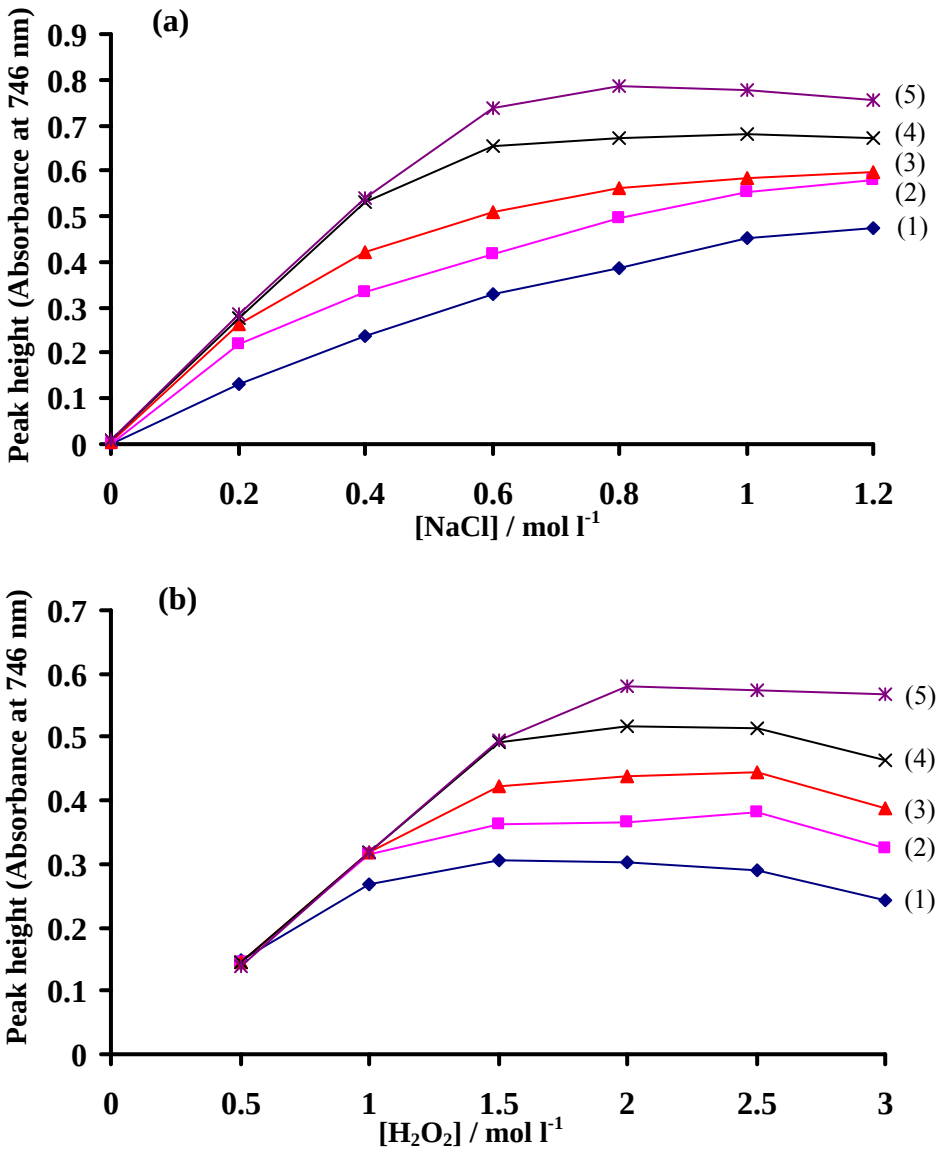
(a)
Peak height (Absorbance at 746 nm)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.2
0.4
0.6
0.8
1
1.2
[NaCl] / mol l-1
(5)
(4)
(3)
(2)
(1)
(b)
Peak height (Absorbance at 746 nm)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
0.5
1
1.5
2
2.5
3
[H2O2] / mol l-1
(5)
(4)
(3)
(2)
(1)

Fig. 4.

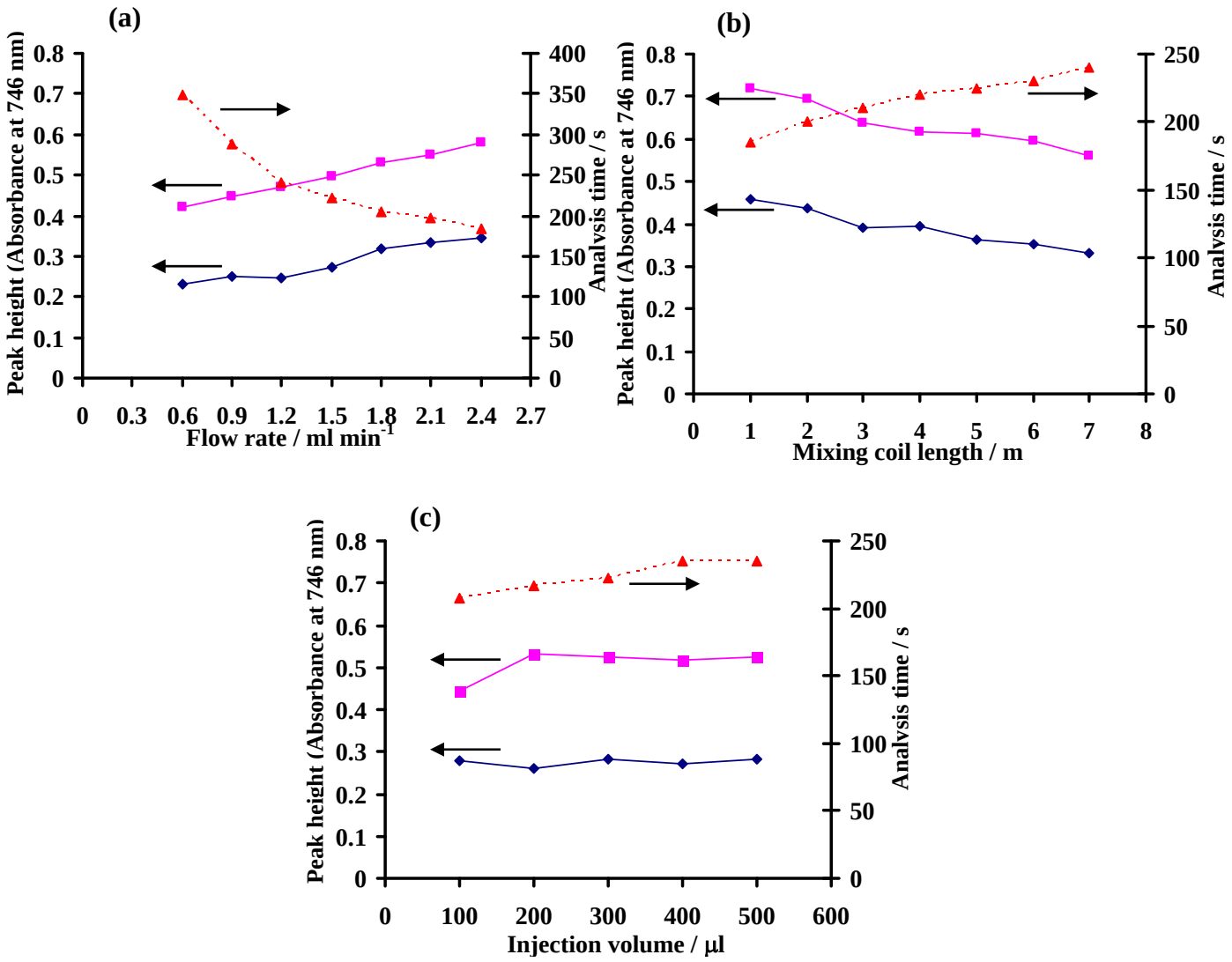
(a)
Peak height (Absorbance at 746 nm)
Analysis time / s
Flow rate / ml min-1
(b)
Peak height (Absorbance at 746 nm)
Analysis time / s
Mixing coil length / m
(c)
Peak height (Absorbance at 746 nm)
Analysis time / s
Injection volume / µl

Fig. 5.

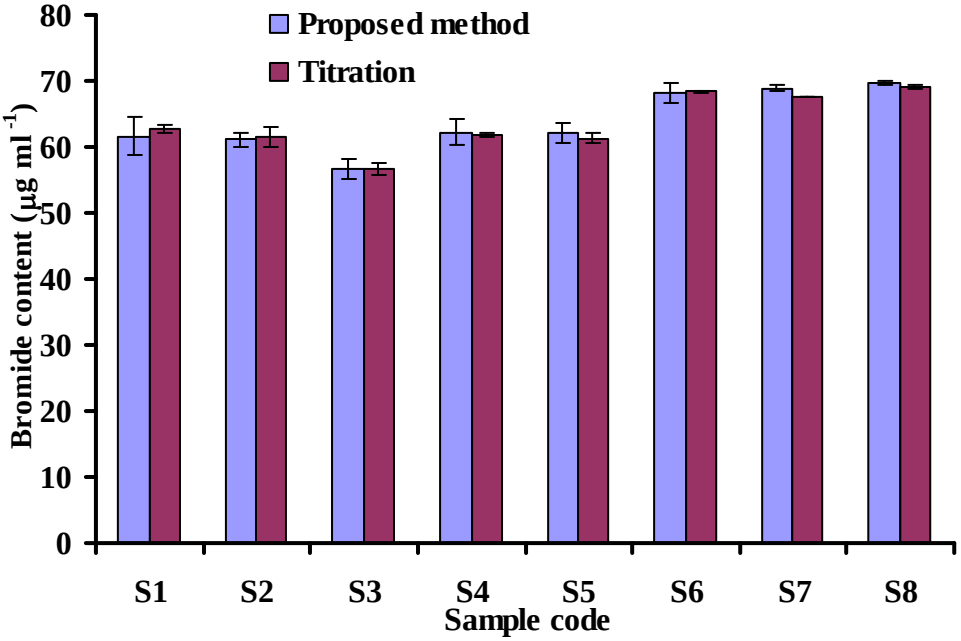
Proposed method
Titration
Bromide content (µg ml-1)
80
70
60
50
40
30
20
10
0
S1
S2
S3
S4
S5
S6
S7
S8
Sample code

Fig. 6.