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Figure 1. Absorption spectra of the complex in different media. The concentration of the complex was  $1.0 \times 10^{-5}$  mol/L. The path length was 1 cm. The temperature was 25°C. The pH was 10.0. The media were (A) water, (B) 0.1 M NaCl, (C) 0.1 M NaNO<sub>3</sub>, (D) 0.1 M Na<sub>2</sub>SO<sub>4</sub>, (E) 0.1 M Na<sub>2</sub>CO<sub>3</sub>, (F) 0.1 M Na<sub>2</sub>HPO<sub>4</sub>, (G) 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub>, (H) 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl, (I) 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub>, (J) 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> + 0.1 M Na<sub>2</sub>SO<sub>4</sub>.

The absorption spectra of the complex in different media are shown in Figure 1. The complex showed a maximum absorption at 410 nm in all media. The absorbance of the complex in water (A) was the highest, and the absorbance in 0.1 M NaCl (B) was the lowest. The absorbance of the complex in 0.1 M NaNO<sub>3</sub> (C) was higher than that in 0.1 M Na<sub>2</sub>SO<sub>4</sub> (D). The absorbance of the complex in 0.1 M Na<sub>2</sub>CO<sub>3</sub> (E) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> (F). The absorbance of the complex in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> (G) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl (H). The absorbance of the complex in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> (I) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> + 0.1 M Na<sub>2</sub>SO<sub>4</sub> (J).

The effect of the concentration of the complex on the absorbance at 410 nm is shown in Figure 2. The absorbance increased linearly with the concentration of the complex in all media. The slope of the linear relationship was the highest in water (A) and the lowest in 0.1 M NaCl (B). The slope of the linear relationship in 0.1 M NaNO<sub>3</sub> (C) was higher than that in 0.1 M Na<sub>2</sub>SO<sub>4</sub> (D). The slope of the linear relationship in 0.1 M Na<sub>2</sub>CO<sub>3</sub> (E) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> (F). The slope of the linear relationship in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> (G) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl (H). The slope of the linear relationship in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> (I) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> + 0.1 M Na<sub>2</sub>SO<sub>4</sub> (J).

The effect of the pH on the absorbance at 410 nm is shown in Figure 3. The absorbance increased with the pH in all media. The absorbance was the highest at pH 10.0 in all media. The absorbance was the lowest at pH 6.0 in all media. The absorbance at pH 10.0 in 0.1 M Na<sub>2</sub>CO<sub>3</sub> (E) was the highest, and the absorbance at pH 6.0 in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> (F) was the lowest.

The effect of the temperature on the absorbance at 410 nm is shown in Figure 4. The absorbance increased with the temperature in all media. The absorbance was the highest at 35°C in all media. The absorbance was the lowest at 15°C in all media. The absorbance at 35°C in 0.1 M Na<sub>2</sub>CO<sub>3</sub> (E) was the highest, and the absorbance at 15°C in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> (F) was the lowest.

The effect of the ionic strength on the absorbance at 410 nm is shown in Figure 5. The absorbance increased with the ionic strength in all media. The absorbance was the highest in 0.1 M NaCl (B) and the lowest in 0.1 M Na<sub>2</sub>CO<sub>3</sub> (E). The absorbance in 0.1 M NaNO<sub>3</sub> (C) was higher than that in 0.1 M Na<sub>2</sub>SO<sub>4</sub> (D). The absorbance in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> (F) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> (G). The absorbance in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl (H) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> (I). The absorbance in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> + 0.1 M Na<sub>2</sub>SO<sub>4</sub> (J) was the lowest.

The effect of the complexing agent on the absorbance at 410 nm is shown in Figure 6. The absorbance increased with the concentration of the complexing agent in all media. The absorbance was the highest in 0.1 M Na<sub>2</sub>CO<sub>3</sub> (E) and the lowest in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> (F). The absorbance in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> (G) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl (H). The absorbance in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> (I) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> + 0.1 M Na<sub>2</sub>SO<sub>4</sub> (J).

The effect of the complexing agent on the absorbance at 410 nm is shown in Figure 7. The absorbance increased with the concentration of the complexing agent in all media. The absorbance was the highest in 0.1 M Na<sub>2</sub>CO<sub>3</sub> (E) and the lowest in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> (F). The absorbance in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> (G) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl (H). The absorbance in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> (I) was higher than that in 0.1 M Na<sub>2</sub>HPO<sub>4</sub> + 0.1 M Na<sub>2</sub>CO<sub>3</sub> + 0.1 M NaCl + 0.1 M NaNO<sub>3</sub> + 0.1 M Na<sub>2</sub>SO<sub>4</sub> (J).

Cu(II) Fe(III)

試料の濃度は、0.1 mg/ml (Cu) と 0.1 mg/ml (Fe) の混合液とする。この混合液を 5 ml 容量に定容し、10 ml の試料液とする。

20% 11.8% 0.810 無色

4 // 1.0 // 0.821 //

5.8 0.800 //

0.825 //

10 液層: 10 mm

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20 γ

0.995

20

0.99

0.990

		Cu(II)量		Cu	
		0.7		0.07	
		0.8		0.08	
No. 1	0.0320 0.0211				
No. 2	0.0362 0.0283				
No. 3	0.0362 0.0283				
実験 No.					
		0.15		0.000	
		0.24		0.000	
3	10 0.415 0.407	11.3		1.3	
4	20 0.770 0.762	21.2		1.2	

