

Practical Methods for Separating and Detecting Permanganate, Nitrite and Hypochlorite Ions in Analytical Chemistry Education

Métodos Práticos para Separação e Detecção dos Íons Permanganato, Nitrito e Hipoclorito no Ensino de Química Analítica

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Figure S1 refers to the initial precipitation steps in the separation of the three anions under study. Test tube A refers to the initial solution containing the hypochlorite, nitrite, and permanganate anions. Test tube B illustrates the moment when the precipitating reagent for the hypochlorite anion, lead nitrate, is added to the initial solution, forming a slightly soluble, white-colored salt. Test tube C illustrates the final precipitate formed after the centrifugation step.

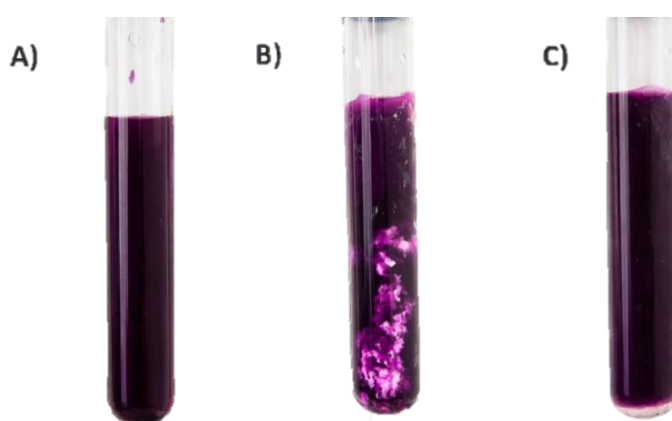


Figure S1. A) Test tube containing the hypochlorite, nitrite, and permanganate anions; B) Addition of the precipitating reagent $\text{Pb}(\text{NO}_3)_2$; C) Precipitate formed

Figure S2 refers to the precipitation and characterization step of the permanganate anion. Tube D illustrates the addition of the precipitating reagent, silver nitrate. Tube E illustrates the precipitate formed after the centrifugation step.

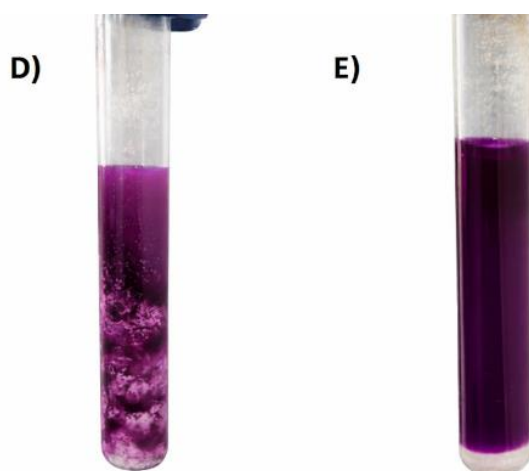


Figure S2. D) Addition of silver nitrate; E) Precipitate formed

Finally, figure S3 demonstrates the characterization of the permanganate ion, marked by the change from the intense purple color of the solution to a colorless solution after the addition of H_2O_2 and H_2SO_4 .

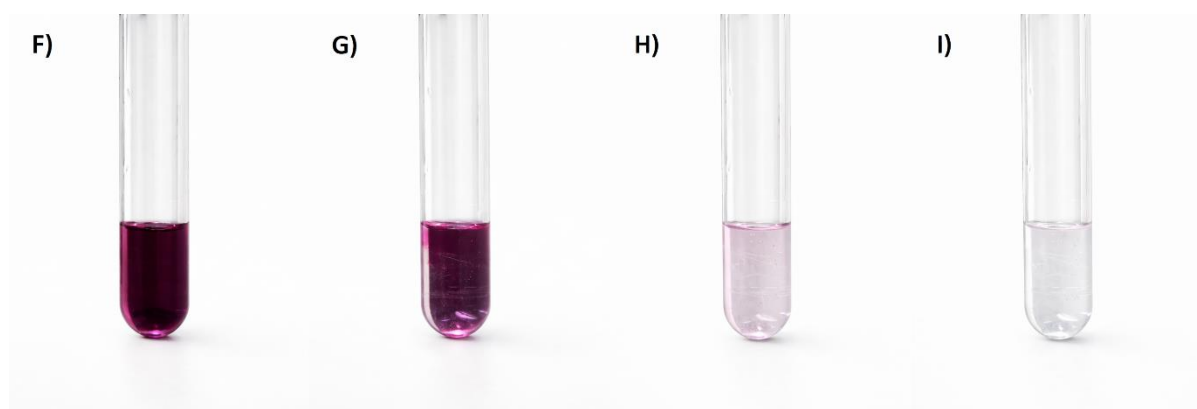


Figure S3. F) Solution containing the permanganate anion; G) Addition of H_2O_2 and H_2SO_4