جامعة الانبار

كلية : الصيدلة

قسم : الكيمياء الصيدلانية

اسم المادة باللغة العربية: مختبر الكيمياء العضوية

اسم المدة باللغة الإنكليزية: **Inorganic Chemistry lab**

المرحلة: الثالثة

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عنوان المحاضرة باللغة العربية: تجربة تعيين كمية كبريتات النحاس

عنوان المحاضرة باللغة الإنكليزية: **Assay of Copper Sulphate**

Assay of Copper Sulphate

Introduction

Copper sulphate $CuSO_4.5H_2O$ used in Fehling and Benedict reagents. Medicinally used as antifungal and algeside. Mwt = 249. Chemical principle $CuSO_4$ is treated with excess potassium iodide in acidic media, cupric iodide is formed which is unstable and will break up in to iodide and iodine. The librated iodine is titrated with standard sodium thiosulphate solution.

$$2CuSO_4 + 4KI \rightarrow 2CuI_2 + 2K_2SO_4$$

$$2CuI_2 \rightarrow 2CuI(Cu_2I_2) + I_2$$

$$I_2 + 2Na_2S_2O_3 \rightarrow 2NaI + Na_2S_4O_6$$

The librated iodine is adsorbed by the precipitated cuprous iodide. The addition of potassium thiocyanate near the end point forms coprous thiocyanate, and tend to free the adsorbed iodine.

$$KSCN + CuI \rightarrow CuSCN + KI$$

Procedure

Dissolve about 1g accurately weighed in 50ml of water, add 1.5g of potassium iodide, and 5ml acetic acid, and titrate the librated iodine with 0.1N sodium thiosulphate using starch mucilage as indicator, and continue the titration until the blue color disappears. Calculation Calculate the amount of $CuSO_4$? Each ml of 0.1N $Na_2S_2O_3$ is equivalent to 0.0249g of $CuSO_4.5H_2O$