

**SPECTROMETRIC STUDY ON THE INTERACTION  
OF Sn(II) AND Fe(II) WITH NATURAL PIGMENT OF  
HIBISCUS ROSA-SINENSIS**



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## ABSTRACT

### **SPECTROMETRIC STUDY ON THE INTERACTION OF Sn<sup>2+</sup> AND Fe<sup>2+</sup> WITH NATURAL PIGMENT OF HIBISCUS ROSA - SINENSIS.**

*Hibiscus rosa-sinensis* flowers of different colors (pink, peach and red) were chosen in these spectrophotometric studies. The natural pigments were extracted in acidified water with hydrochloric acid at different pH (1, 3, and 5). The crude extract was then analyzed by using UV-VIS Spectrophotometer over the range of 400 nm to 700 nm. The maximum absorbance of red, pink and peach flowers were 6.363, 0.3602 and 0.4212 and detected at 520.96 nm, 514.73 nm and 513.78 nm respectively. The metal cation of Fe(II) and Sn(II) ion were applied in order to study their interaction with natural pigment. The interaction of pink flower crude extract with Fe(II)ion gives hypsochromic shifts. Whereas the interaction between both metal cations and other crude extracts give bathochromic shifts. The percent decreased in absorbance was in the range of 14.79 % to 69.25% for the interaction of metal cation with crude extract of natural pigment. Different shades of color were obtained on silk fabric when the cations solution mixed with crude extract of each flower.

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background.

*Hibiscus rosa-sinensis* is a large genus of about 200-220 species of flowering plants in the family Malvaceae, It is a broadleaf evergreen shrub which grows 1- 3 m tall. The leaf blade is broadly or narrowly ovate, not lobed and measures 4 - 9 x 2.5 cm. The base is rounded or cunneate, the margin dentate or lobed and the apex acuminate. The flowers are solitary, axillary on upper branches, usually pendulous, simple or double. Pedicel is 3-7 cm, sparsely stellate pilose or nearly glabrous and articulate near apex. The petals (usually five) are obovate, corolla rosy red, reddish or orange-yellow in color; funnel shaped and 6 -10 cm in diameter. The entire plant has a course texture and may be upright or broad and spreading. The plant grows luxuriantly in the tropics native to warm temperate and subtropical regions throughout the world and flowers all through the year. Our choice of this plant species for the extraction of the natural pigment has been based on its abundant distribution in the tropics and the fact that it flowers all through the year (Ukwueze *et al.*, 2009).