

**OPTIMIZATION OF PARAMETERS FOR THE Fe-HUMIC
ACID COMPLEX FORMATION USING
FLUORESCENCE SPECTROSCOPY**

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ABSTRACT

Humic acid was extracted from an artesian well located at Sta. Barbara, Iloilo. It was black in color and had a powdery texture after oven-drying. Humic acid samples were used to prepare complexes with Fe^{3+} ions to determine the ideal conditions to maximize the binding of the metal ion. Using the fluorescence data of the ligand as a comparative measure to confirm complex formation, varying concentration and pH conditions were used in preparing Fe-HA complexes. The excitation spectra of the different concentration ratios prepared showed that pH 6 favored the complex formation. The emission spectra showed that pH 6 exhibited high fluorescence signals. The EEMs of different concentration ratios at pH 6 showed that it is the optimal range for complex formation. In pH 8 and pH 10, no consistent pattern in their EEMs can be observed. This indicates that alkaline conditions, complex formation is not favored.

Keywords: Fe-HA complex, fluorescence, EEMs, excitation, emission, optimization