

Absorption Spectrum of Copper(II)Protoporphyrin

INTRODUCTION

Porphyrin forms a stable complex with various elements. Porphyrins such as chlorophylls and hemes are a type of organic compound which plays an important role in living organisms. The applications of porphyrins to sensitizing dyes in solar cells and emitting materials for organic EL are also being studied.

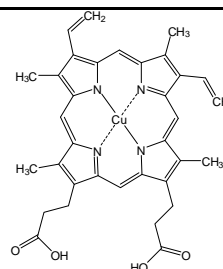
This time, the fluorescence properties of copper (II) protoporphyrin were analyzed. When this sample is irradiated with the excitation light at about 410 nm, the fluorescence was observed at about 635 nm. Spectral corrections are necessary to obtain accurate emission properties. By using F-7000 with the substandard light source and R928F photomultiplier, the spectral corrections over a broad wavelength range, from the UV to visible region (200 - 800 nm), are possible.

SAMPLE

Sample : Copper(II) protoporphyrin
 $C_{34}H_{32}CuN_4O_4$ mol.wt. 624.2
 (Alexis-Biochemicals)

Solvent : Dimethyl sulfoxide (DMSO)

Concentration : 1.0×10^{-5} mol/L



ANALYSIS CONDITIONS

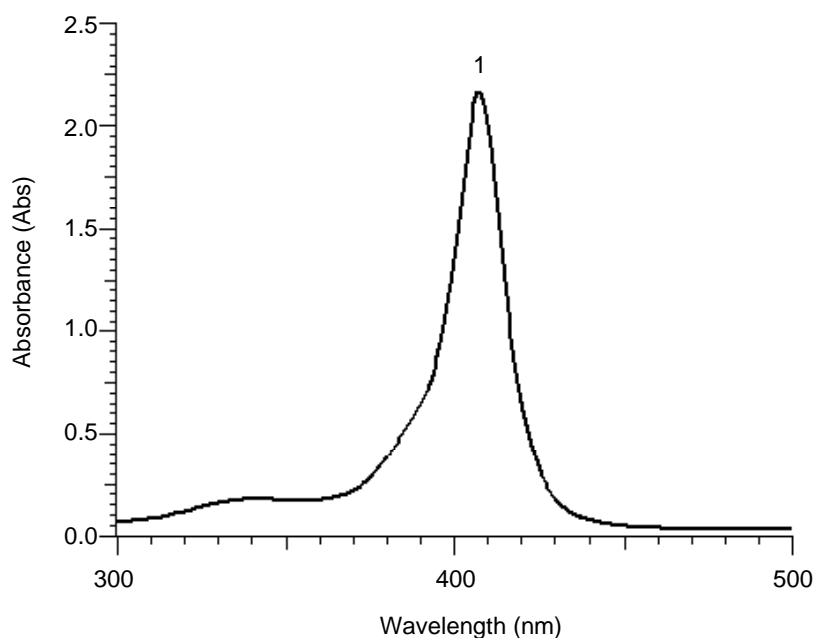
WAVELENGTH (nm)

Instrument : U-3900H

Scan speed : 300 nm/min

Slit : 5 nm

1. 407



KEY WORDS

Material-Processing Material Related, Pigment·Paint·Dye, Red Organic EL Display Material, Copper(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Absorption Spectrum, Red Dopant Material, OLED, UV, U-3900H

Fluorophotometer (FL)

Sheet No. FL100009-01

Excitation Spectrum of Copper(II)Protoporphyrin

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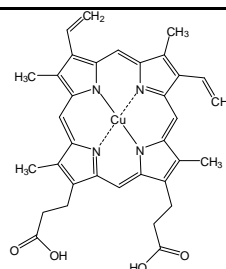
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ACCESSORY

Substandard Light Source
 (P/N : 5J0-0110)

ANALYSIS CONDITIONS

Instrument : F-7000

Fluorescence wavelength : 630 nm

Slit on excitation side : 10 nm

Slit on fluorescence side : 10 nm

Scan speed : 240 nm/min

Response : Automatic

EM filter : 430

Detector : R928F

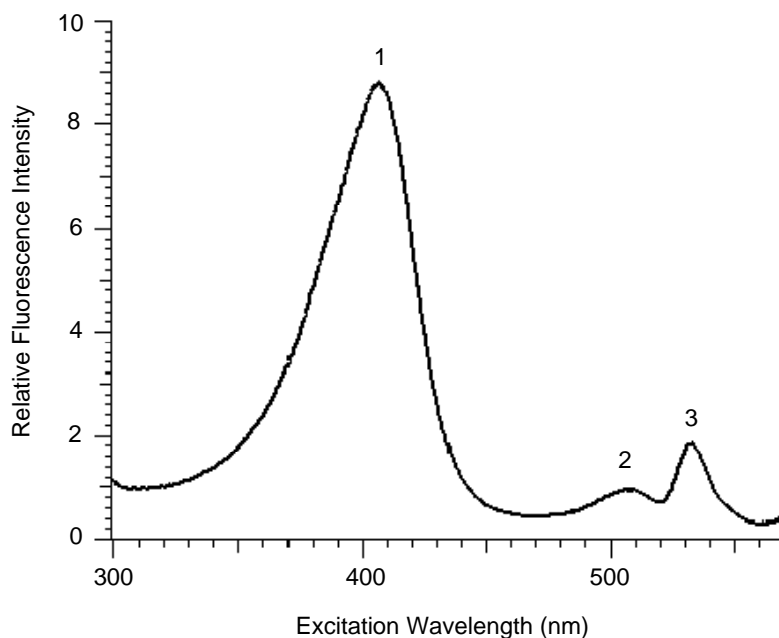
Photomultiplier voltage : 400 V

WAVELENGTH (nm)

1. 407

2. 507

3. 532



[With Spectral Corrections]

KEY WORDS

Material-Processing Material Related, Pigment-Paint-Dye, Red Organic EL Display Material, Copper(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Excitation Spectrum, Red Dopant Material, OLED, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100009-02

Fluorescence Spectrum of Copper(II)Protoporphyrin

INTRODUCTION

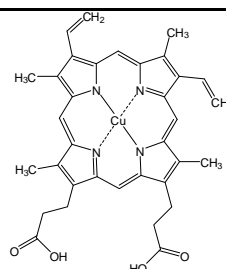
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ACCESSORY

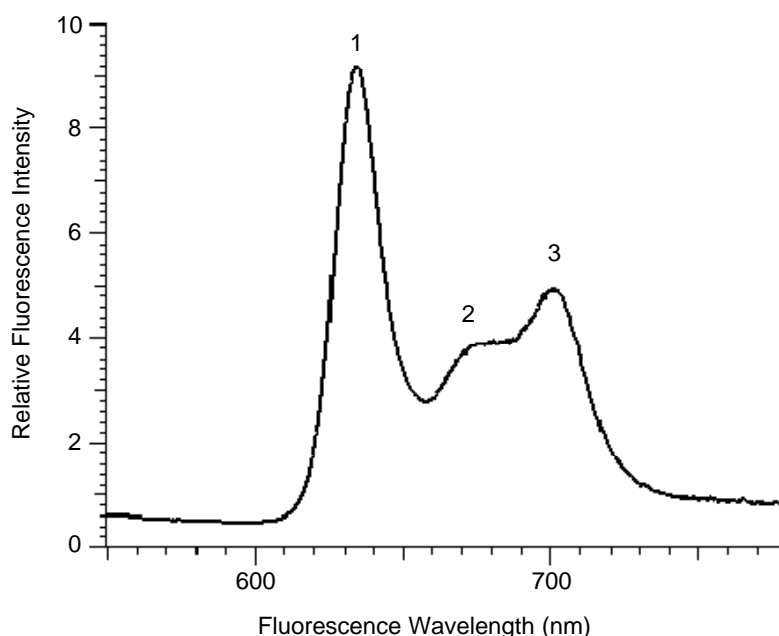
Substandard Light Source
 (P/N : 5J0-0110)

ANALYSIS CONDITIONS

Instrument	: F-7000	Response	: Automatic
Excitation wavelength	: 407 nm	EM filter	: 430
Slit on excitation side	: 10 nm	Detector	: R928F
Slit on fluorescence side	: 10 nm	Photomultiplier voltage	: 400 V
Scan speed	: 240 nm/min		

WAVELENGTH (nm)

1. 634
 2. 676
 3. 700



[With Spectral Corrections]

KEY WORDS

Material-Processing Material Related, Pigment-Paint-Dye, Red Organic EL Display Material, Copper(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Fluorescence Spectrum, Red Dopant Material, OLED, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100009-03

Overlay Spectrum of Copper(II)Protoporphyrin

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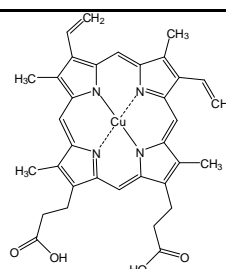
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ACCESSORY

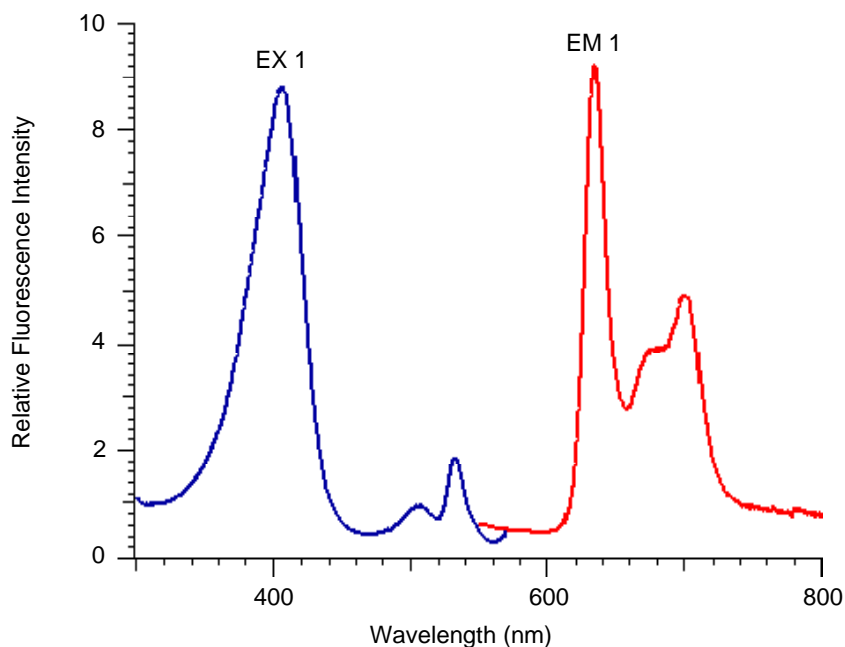
Substandard Light Source
 (P/N : 5J0-0110)

ANALYSIS CONDITIONS

Instrument	: F-7000	Scan speed	: 240 nm/min
Excitation wavelength	: 407 nm	Response	: Automatic
Fluorescence wavelength	: 630 nm	EM filter	: 430
Slit on excitation side	: 10 nm	Detector	: R928F
Slit on fluorescence side	: 10 nm	Photomultiplier voltage	: 400 V

WAVELENGTH (nm)

EX 1 : 407
 EM 1 : 634



KEY WORDS

Material-Processing Material Related, Pigment-Paint-Dye, Red Organic EL Display Material, Copper(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, Fluorescence Spectrum, Excitation Spectrum, Red Dopant Material, OLED, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100009-04

3D Fluorescence Spectrum of Copper(II)Protoporphyrin

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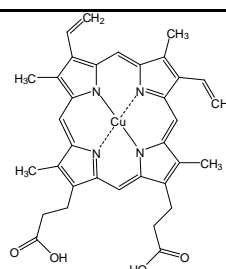
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Concentration : 1.0×10^{-8} mol/L



ACCESSORY

Substandard Light Source
 (P/N : 5J0-0110)

ANALYSIS CONDITIONS

Instrument : F-7000

Slit on excitation side : 10 nm

Response : Automatic

Photomultiplier voltage : 400 V

Slit on fluorescence side : 20 nm

EM filter : 430

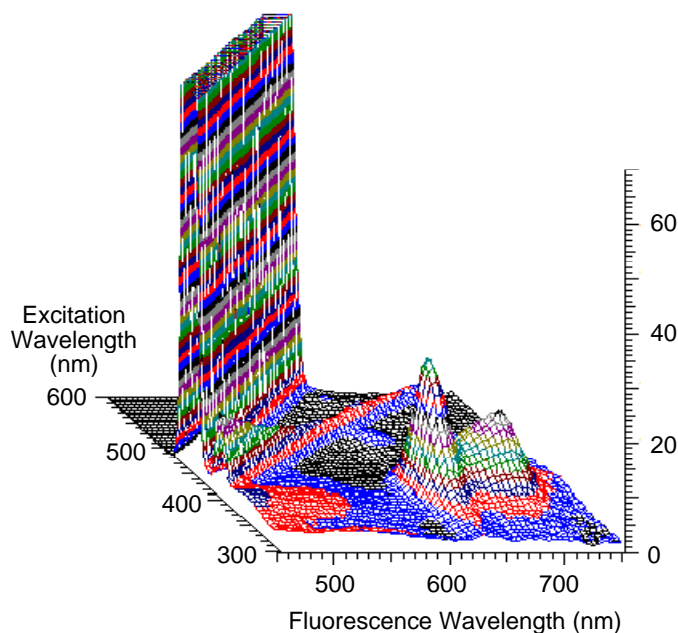
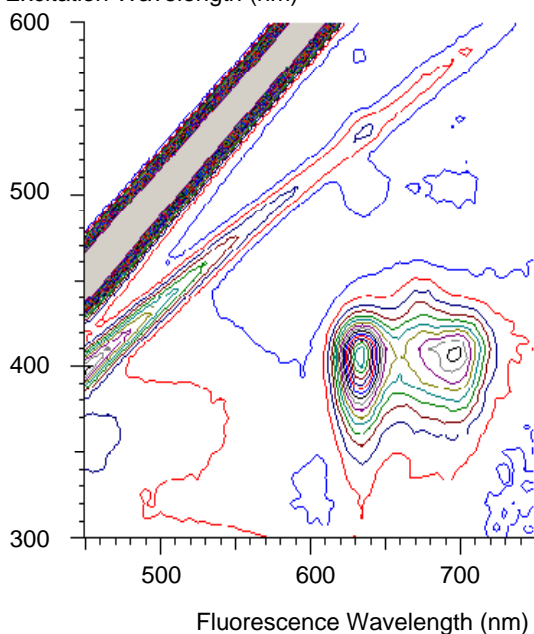
Full scale : 70

Scan speed : 60000 nm/min

Detector : R928F

Contour line interval : 1.5

Excitation Wavelength (nm)



[With Spectral Corrections]

KEY WORDS

Material-Processing Material Related, Pigment-Paint-Dye, Red Organic EL Display Material, Copper(II) Protoporphyrin, Chlorophyll, Heme, Solar Cell, Organic Dye, Dye Sensitization, Emitting Material, 3D Fluorescence Spectrum, 3D, Red Dopant Material, OLED, FL, F-7000

Fluorophotometer (FL)

Sheet No. FL100009-05