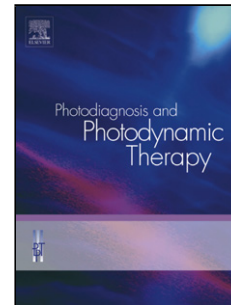


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A Study for the Detection of Kidney Cancer Using Fluorescence Emission Spectra and Synchronous Fluorescence Excitation Spectra of Blood and Urine

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Highlights:

- Different types of biomolecular markers in kidney cancer patients and in normal healthy controls
- Techniques used are Fluorescence emission spectra and synchronous fluorescence excitation spectra.
- Accurate classification of the spectral features of kidney cancer patients relative to that of normal controls, in terms of the concentration ratios of biomolecules.
- The specificity and sensitivity of the method were 90%.
- Our current approach is to evolve an innovative protocol for the spectral characterization of in vitro optical analyses suitable for both small clinics and hospitals.

Abstract: In this study, we compared different types of biomolecular markers in kidney cancer patients and in normal healthy controls, using fluorescence emission spectra and synchronous fluorescence excitation spectra. We were able to provide an accurate classification of the spectral features of kidney cancer patients relative to that of normal controls, in terms of the concentration ratios of biomolecules (viz., tryptophan, NADH, FAD, basic porphyrin, and acidic porphyrin) based on the intensity of their spectral peaks. The specificity and sensitivity of the method were 90%. The rationale of our current approach is to evolve an innovative protocol for the spectral characterization of in vitro optical analyses suitable for both small clinics and hospitals.

Keywords: Kidney cancer, tryptophan NADH, FAD, basic porphyrin and acidic porphyrin, Fluorescence Emission Spectra, synchronous fluorescence excitation

1. Introduction

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