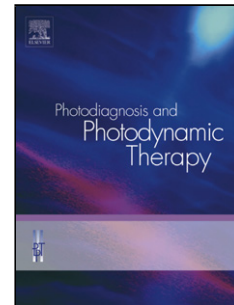


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HYPERICIN CYTOTOXICITY IN TUMOR AND NON-TUMOR CELL LINES: A CHEMOMETRIC STUDY

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Abstract

Hypericin (HY) is an excellent photoactive compound that has been investigated for the photodynamic treatment of cancer as well as for microorganisms inactivation. In this study, chemometric analysis was applied for the first time on photodynamic assays to investigate the cytotoxicity of HY in tumor (HEp-2) and non-tumor (Vero and HUVEC) cell lines. The experimental planning was based on eight assays using the 2^3 full factorial design combining three important variables for PDT: photosensitizer concentrations, incubation time of cells in HY solutions and employed light dose ($=590\pm 10$ nm). The statistical data analysis evidenced the relative significance of such variables and the correlations among them on the cell death. The chemometric results suggested that long incubation time and a low HY concentration and/or light dose allow killing selectively tumor cells. The chemometric analysis could be a new useful empiric method to a previous prediction of the IC_{50} . In this study, the estimated values were in agreement with the experimental IC_{50} values.

Key-words: Hypericin, photodynamic therapy, IC_{50} prediction model, chemometric analysis.

1 Introduction

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