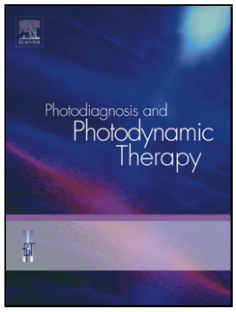

Title: Selective photoinactivation of *Histoplasma capsulatum* by water-soluble derivatives chalcones

Author: Wanessa C.M.A. Melo Mariana Bastos dos Santos Beatriz de Carvalho Marques Luis Octávio Regasini Maria José Soares Mendes Giannini Ana Marisa Fusco Almeida

PII: S1572-1000(16)30207-1
DOI: http://dx.doi.org/doi:10.1016/j.pdpdt.2017.03.001
Reference: PDPDT 917

To appear in: *Photodiagnosis and Photodynamic Therapy*

Received date: 13-10-2016
Revised date: 24-1-2017
Accepted date: 9-3-2017

Please cite this article as: Melo WCMA, Santos MB, Marques BC, Regasini LO, Giannini MJSM, Almeida AMF, Selective photoinactivation of *Histoplasma capsulatum* by water-soluble derivatives chalcones, *Photodiagnosis and Photodynamic Therapy* (2017), http://dx.doi.org/10.1016/j.pdpdt.2017.03.001

Highlights

- aPDT is efficacy to inhibit the dimorphic fungi *H. capsulatum*, causing a minimal of damage to host cells.
- The functionalization of chalcones with OH contributed to increase the efficiency of aPDT against *H. capsulatum*
- The CH2 at 7.81 µg mL^{-1} associated to 24 J cm^{-2} light dose was capable to reduce 100% of *H. capsulatum* while was necessary 8 times of CH1 concentration to inhibit 95% of this fungus at same aPDT conditions.

Selective photoinactivation of *Histoplasma capsulatum* by water-soluble derivatives chalcones

Wanessa C M A Melo[a], Mariana Bastos dos Santos[b], Beatriz de Carvalho Marques[b], Luis Octávio Regasini[b], Maria José Soares Mendes Giannini[a], Ana Marisa Fusco Almeida[a]

[a]Biociências e Biotecnologia Aplicada a Farmácia/ Núcleo Proteomica - Universidade Estadual Paulista - Araraquara-SP, Brazil
[b]Instituto de Biociências, Letras e Ciências Exatas - Universidade Estadual Paulista - São José do Rio-SP, Brazil

BACKGROUND

Histoplasmosis is a fungal infection caused by the dimorphic fungus *Histoplasma capsulatum* [1]. Depending host immunity the disease can affect organs phagocytic mononuclear system such as spleen and liver [2, 3], as well as can develop oral and tissue lesions [4]. The treatment of histoplasmosis can be performed with itraconazole, fluconazole, and in the disseminated forms is used amphotericin B [5]. However, have been reported the appearance of fluconazole-resistant strains [6, 7], cases of failure with itraconazole therapy [8] and it is well known that amphotericin B cause several side effects, nephrotoxicity and hepatotoxicity [9]. So, these current problems of histoplasmosis therapies make urgent the development of new strategies to treat this disease. Antimicrobial photodynamic therapy (aPDT) seems to be a potential candidate once have been show effectively to kill different species of fungi, causing minimal damage to host cells [10, 11].

AIMS

Several photosensitizers (PSs) have been investigated for aPDT applications in the treatment and control of yeasts, including chalcone that show a high quantum yield of