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Photostability Studies of Ketoconazole: Isolation and Structural Elucidation of the Main Photodegradation Products

Inara STAUB [1]*, Letícia FLORES [1], Grace GOSMANN [1], Adriana POHLMANN [1,2], Pedro E. FRÖEHLICH [1], Elfrides E. S. SCHAPOVAL [1] & Ana M. BERGOLD [1]

[1] *Programa de Pós-Graduação em Ciências Farmacêuticas, Universidade Federal do Rio Grande do Sul, Av. Ipiranga 2752, CEP 90610-000, Porto Alegre, Brasil.*
[2] *Departamento de Química Orgânica, Universidade Federal do Rio Grande do Sul, Av. Bento Gonçalves 9500, CEP 91501-970, Porto Alegre, Brasil.*

SUMMARY. **The purpose of this study was to obtain information on the photochemical properties of ketoconazole, an antifungal agent. Photodegradation of ketoconazole in solution and shampoo under exposure to UV-C (254 nm) and UV-A (352 nm) radiations as well as daylight was monitored by HPLC. Separation of ketoconazole from its degradation products was obtained with monoisopropylamine - methanol (2:500 v/v) and amonium acetate- water (1:200 w/v) (7:3 v/v) as mobile phase on a LiChrospher® 100 column RP-8, 5 μm (150 mm x 4.6 mm) and a flow rate of 1 ml/min. The main protodegradation products: (*cis*-1-acetyl-4-{4-[[2-(2-chlorophenyl)-2-(1H-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl}piperazine and (*cis*-1-acetyl-4-{4-[[2-(4-chlorophenyl)-2-(1H-imidazol-1-ylmethyl)-1,3-dioxolan-4-yl]methoxy]phenyl} piperazine, were isolated and characterized by HPLC-MS and NMR spectrometry. The results indicated photodechlorination of ketoconazole when exposed to light and a significant decrease in antifungal activity.**

KEY WORDS: Antifungal activity, Ketoconazole, Liquid chromatography, Photoproduct characterization, Photostability.

* Author to whom correspondence should be addressed. *E-mail:* inarastaub@hotmail.com

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