

Study of the Cytotoxic and Antifungal Activities of Neolignans 8.O.4' and Structurally Related Compounds

R.D. Enriz¹, F. Giannini¹, E. Correche¹, M. Carrasco¹, S. Zacchino² and P. Matyus³

¹Universidad Nacional de San Luis. Facultad de Química, Bioquímica y Farmacia. Cátedra de Química General, Argentina

E-mail: p8101@unsl.edu.ar

²Universidad Nacional de Rosario. Facultad de Bioquímica y Farmacia. Cátedra de Farmacognosia

³Departamento de Química. Universidad de Semmelweis, Hungría

Abstract: In the present work we report the antifungal and cytotoxic activities of a neolignan 8.O.4' series. The most active antifungal compounds show a significant cytotoxic effect which might be related.

Introduction

Fungal infections have emerged during the past two decades as important pathogens causing morbidity and mortality in an increasingly diverse and progressively expanding populations of immunocompromised patients. Unfortunately there are only very limited therapeutic options, especially for systemic mycotic infections.

In the search of new antifungal compounds we reported that neolignans 8.O.4' have a moderated but significant antifungal activity against dermatophytes fungi [1,2].

Using the classic techniques of molecular simplification, we recently reported a systematic study on the antifungal properties of arylpropanoids which are constitutive parts of neolignans [3]. Our results indicate that some arylpropanoids possess strong antifungal effects which are comparable to those of amphotericine B and ketoconazole.

In the present work we report a comparative study on the antifungal and cytotoxic activities of these compounds and their length and limitations as antifungal agents.

Experimental

Cytotoxicity bioassay: Cytotoxicity was evaluated in a lymphocyte culture evaluating the incorporation of thymidine tritiated [4].

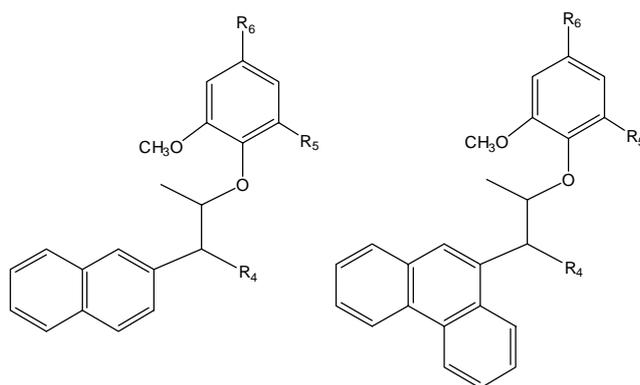
Antifungal assay: the dilution agar method was used [1]. Different human pathogenic fungi were used in the bioassays.

Results and Discussion

Our results indicate that all the arylpropanoids having strong antifungal activity also have a significant cytotoxic activity.

It should be noted that the cytotoxic activity obtained for arylpropanoids is comparable to those obtained for commercial drugs like amphotericin B, cilofungine, ketoconazole and miconazole.

Neolignans 8.O.4' show a low cytotoxic effect, however they only have a moderate antifungal activity too. With the aim to separate the antifungal activity with the cytotoxic effect we synthesized the follow compounds.



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References and Notes

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