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NOTE

Antifungal Evaluation of Some Novel Aminobenzylated Mannich Bases

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In the present study, 8 synthesized amino benzylated Mannich bases were evaluated for their antifungal activity against the pathogenic strains of *Candida albicans* and *Aspergillus niger* using ketoconazole as reference standard drug. All the compounds studied have shown moderate antifungal activity with zones of inhibition ranging from 5-12 nm with the minimum inhibitory concentration ranging from 600-800 µg/mL.

Key Words: Ketoconazole, Antifungal activity, Aminobenzylated Mannich bases, Minimum inhibitory concentration.

The development of resistance to current antifungal therapeutics continues to drive the search for effective newer agents and it is reported that Mannich base have antifungal activity but less information is available regarding the antifungal activity of aminobenzylated Mannich bases[1]. This led us to design and synthesize some novel aminobenzylated Mannich bases using mannich reaction[2] and the same were reported in our previous study[3,4]. In the present study an attempt has been made to elucidate the possible antifungal activity of these compounds against the pathogenic strains of fungus *Aspergillus niger* and *Candida albicans* with respect to the standard antifungal drug ketoconazole.

The micro organism used in this study was *Candida albicans* and *Aspergallus niger* were maintained using sabourand-dextrose agar slants in our laboratory.

The test fungus were grown in sabourand-dextrose broth at 28 ºC for 2 days and the final inoculum size was adjusted to 5×10^5 cfu/mL. Susceptibility tests were performed by agar dilution method[5]. A 1 mL volume of the standard suspension of each test strain was spread evenly on sabourand-dextrose agar using sterile glass rod spreader and the plates were allowed to dry at room temperature. Subsequently 6 mm diameter wells were bored in the agar and a range of 500-800 µg/mL of each of the Mannich bases were pippeted in to wells. After holding the plates at room temperature for 2 h to allow diffusion of the compounds in to the agar. They were inculcated at 28 ºC for 4 days for fungal growth. Inhibition zone diameter (IZD) was measured to the nearest millimeter (mm). Ketoconazole (500 µg/mL) was used

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as experimental positive control and 5 % DMSO as negative control. The tests were performed in triplicate for each fungal strain evaluated and the final results were expressed (Table-1) as arithmetic average. Only the compound showing strong inhibitory zone diameter (IZD = 10 mm or more) and wider spectrum of antifungal activity in this preliminary screening were assed further for their minimal inhibitory concentration (MIC) determination[6]. The minimum inhibitory concentration (MIC) values reported (Table-1) were the lowest concentration of the compound (µg/mL) which inhibited the growth of the fungus. The tests were performed three times to verify the repeatability.

TABLE-1
ANTIFUNGAL ACTIVITY OF THE COMPOUNDS (**1a-1h**)

Compound	Antifungal activity data in IZD (mm)		Antifungal activity data MIC (µg/mL)	
Ia-Ih	*Candida albicans*	*Aspergillus niger*	*Candida albicans*	*Aspergillus niger*
Ia	10.0	08.0	700	700
Ib	06.0	05.0	–	–
Ic	07.0	06.0	–	–
Id	08.0	07.0	–	–
Ie	12.0	10.0	–	–
If	09.0	08.0	650	–
Ig	08.0	07.0	–	–
Ih	06.0	05.0	–	–
Ketoconazole	28.0	23.0	–	–
DMSO (Control)	–	–	500	500

All the compound screened (**1a-1h**) showed mild antifungal activity against *Candida albicans* and *Aspergillus niger* with the zone of inhibition ranging from 5-12 mm with the MIC ranging from 500-800 µg/mL.

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