Applicant Information

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Abstract Details

Title:

Acridone alkaloids from Zanthoxylum zanthoxyloides potentiate the antifungal activity of voriconazole, nystatin and caspofungin

Category:

Communicable diseases (Malaria,Â TB,Â HIV,Â NTD)

Authors:

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Objectives:

Fungal infections are a significant global healthcare problem causing more deaths annually than tuberculosis or malaria. The study investigated the antifungal activity of arborinine and fabiocinine, isolated from Zanthoxylum zanthoxyloides, against fluconazole-resistant Candida albicans and Candida glabrata, and assessed their ability to potentiate the effect of clinically used antifungals, voriconazole, nystatin and caspofungin, against the resistant Candida species.

Method:

The anti-Candida activities of arborinine and fabiocinine were investigated using the microbroth dilution method. The effect of combining the compounds with the clinically used antifungals against the resistant Candida strains were evaluated using the Checkerboard assay. Thereafter, the modulatory activities of sub-inhibitory concentrations of the compounds on the activity of the conventional drugs against the Candida strains were investigated.

Results:

Whereas arborinine demonstrated moderate antifungal activity with minimum inhibitory concentration (MIC) of 31.25 â€“ 62.5 Î¼g/mL against the resistant C. albicans and C. glabrata strains, fabiocinine exhibited strong to moderate antifungal activities with MIC of 15.63 â€“ 62.5 Î¼g/mL. The compounds were shown to act synergistically with the antifungal drugs against the Candida strains in the Checkerboard assay. At sub-inhibitory concentrations of Â½MIC and Â¼MIC, arborinine and fabiocinine potentiated the anti-Candida activities of voriconazole, nystatin and caspofungin; with fabiocinine potentiating the effects of voriconazole and nystatin with modulatory factors as high as 128 and 64 against C. albicans and C. glabrata strains, respectively.

Conclusion:

The study findings have demonstrated the antifungal activity of arborinine and fabiocinine and shown that they could be used to potentiate the activity of clinically used antifungal drugs.

Submission Date:

2024-09-14 21:30:21