

## Characterization and Optimization of Antimicrobial Compound/S Produced by *Asperigillus Fumigatus* Isolated from Monuments

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**Abstract :** Xerophilic fungi, which are responsible for many cases of biodeterioration monuments, have been known as an interesting source of antimicrobial compounds. Sixty nine fungal strains, isolated from different localities and species inside Egyptian museums, were screened for antimicrobial activity against some bacterial species and unicellular fungi. The most potent antimicrobial activity was obtained by *Asperigillus fumigatus* which was identified by ITS4 ..... and showed activity against *Staphylococcus aureus* with 20 mm and *C. albicans* with 18 mm of inhibition zone. Different parameters were optimized to enhance this activity. The culture grown under stationary conditions for 8 days at 30°C and pH 8 gave the best antimicrobial activity. Moreover, both starch and yeast extract showed the most suitable carbon and nitrogen sources, respectively. The antimicrobial compound was purified and subjected to spectroscopic characterization, which revealed that the antimicrobial compound might be 5,7 ethoxy, 4-methoxy isorhamnetin-3-O-galactoside. This study suggests that *Asperigillus fumigatus* as a potential candidate offering a better scope for the production, purification and isolation of broad-spectrum antimicrobial compounds. These findings will facilitate the scale-up and further purification to ascertain the compounds responsible for antimicrobial activity, which can be exploited for the treatment of biodeterioration monuments and pharmaceutical applications.

**Keywords :** antimicrobial activity, *asperigillus fumigatus*, Identification by ITS4, *Staphylococcus aureus*, *C.albicans*

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