

# **Fungitoxic effect of natural extracts on mycelial growth, spore germination and aflatoxin B1 production of *Aspergillus flavus***

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## **Abstract :**

The methanolic extracts of leaves from *Tamarix aphylla*, *Tamarix pauciovulata*, *T. hirsuta*, *D. gnidium*, *C. procera*, aerial parts from *H. scoparium*, *A. schmittianum*, *P. argentea* and *M. canescens* were investigated for their antifungal and antiaflatoxic activities against the aflatoxic fungus *A. flavus*. The results of antifungal activity evaluated by two methods indicate that three plant species (*H. scoparium*, *A. schmittianun* and *D. gnidium*) among the nine investigated showed significant ( $p < 0.05$ ) mycelium growth inhibition which is of 65.33%, 83.56% and 100% respectively. Moreover five plant species showed significant ( $p < 0.05$ ) spore germination inhibition. These are extracts of *C. procera* (81.53%), *T. pauciovulata* (83.81%), *T. aphylla* (92.33%), *M. Canescens* (97.73%) and *D. gnidium* (100%). Extracts from *D. gnidium* exhibited complete inhibitory effect on mycelium growth and spore germination, while *H. scoparium* exhibited complete inhibitory effect only on spore germination. In addition, all extracts from different plant species were found efficacious in checking aflatoxin B1 production and extract of *D. gnidium* was the more potent inhibitor of aflatoxin B1 biosynthesis by the fungitoxic strain *A. flavus* at the concentration of 10 $\mu$ g/ml. The findings obtained reveals that the natural extract of *D. gnidium* is an important source of potentially useful molecules for the development of new antifungal agents and the possible exploitation of *D. gnidium* extract to protect the spoilage grains and food stuffs against the aflatoxic fungus *A. flavus*.

**Keywords :** aflatoxins, *Aspergillus flavus*, food protection, medicinal herbs, mycotoxins, natural extracts.

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