

Xanthotoxin: A Plant Derived Furanocoumarin with Antipathogenic and Cytotoxic Activities

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Abstract : In recent years a great deal of efforts has been made to find natural derivative compounds to replace it's with synthetic drugs, herbicides or pesticides for management of human health and agroecosystem programs. This process can lead to a reduction in environmental harmful effects of synthetic chemicals. Xanthotoxin, as a furanocoumarin compound, found in some genera of the Apiaceae family of plants. The current work focuses on some xanthotoxin cytotoxicity and antipathogenic activities. The results indicated that xanthotoxin showed strong cytotoxic effects against LNCaP cell line with the IC₅₀ value of 0.207 mg/ml in a dose-dependent manner. After treatments of the cell line with 0.1 mg/ml of the compound, the viability of the cells was reached to zero. The current study revealed that xanthotoxin displayed strong antifungal activity against human or plant pathogen fungi, *Aspergillus fumigatus*, *Aspergillus flavus* and *Fusarium graminearum* with minimum inhibitory concentration values of 52-68 µg/ml. The compound exhibited antibacterial effects on some *Erwinia* and *Xanthomonas* species of bacteria, as well

Keywords : Xanthomonas, cytotoxic, antipathogen, LNCaP, *Aspergillus fumigatus*, *Aspergillus flavus*

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