

STUDIES ON ANTIFUNGAL ACTIVITIES OF SOME EGYPTIAN MEDICINAL AND AROMATIC PLANTS

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ABSTRACT

The present investigation was planned to study the efficacy of 8 plant extracts, 6 essential oils and the volatile substances bearing from 3 medicinal plants intercropped with each of okra, pepper and squash on spores germination of powdery mildew fungi and their diseases infection. The results obtained can be summarized as follows:

1. All water extracts gave significant decreases in spore germination criteria and the superiority was to hot ones, except with that of garlic. Complete inhibition (100%) was recorded with cold water extract (CWE) of garlic against all fungi tested, hot water extracts (HWE) of marjoram and thyme (*Leveillula taurica* & *Sphaerotheca fuliginea*) and leek (*Erysiphe cichoracearum*) as well as methanolic extracts (ME) of blue gum and thyme against the 3 fungi.
2. Essential oils, as film on slides, completely prevented germination of the three fungi tested. Volatile substances bearing from saturated filter paper discs with oils and fresh or dry plant materials were also effective in this respect. Oils of blue gum and thyme (discs) and fresh plant materials, except these of anise and cumin, gave the best results.
3. Spraying detached leaves with plant extracts as preventive and curative treatments proved that the first one was more effective than the other in diseases control. The HWE of blue gum, marjoram and thyme as well as the CWE of garlic completely suppressed disease incidence.
4. Spraying pepper and squash in the field with tested extracts (50 gm/L water) increased total phenolic contents of their leaves. The HWE of blue gum and thyme as well as the ME of marjoram and thyme and the PEE of marjoram were the best treatments in

decreasing powdery mildews infection and increasing total phenols.

5. Plants sprayed in greenhouse and field with plant extracts and essential oils as preventive and curative treatments gave sufficient control to powdery mildew, in most cases, especially thyme oil which completely prevented mildew incidence on squash (field), therefore, it was as effective as the fungicide Afugan. While, the HWE of blue gum and thyme effects on mildews infection were, in most cases, comparable to that of Afugan.
6. Significant decreases in powdery mildew infection (natural infection) were recorded in intercropping system between leek, marjoram and thyme with each of okra, pepper and squash. However, leek (pepper) and thyme (okra) were always superior in this respect.
7. Studying the efficiency of some integrated control means (plant extracts, essential oils, biocides and the fungicide Afugan) in powdery mildew disease control on squash field plants show significant efficacy in this respect, but the superiority was always to essential oils of blue gum and thyme.

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