BIOLOGICAL, CHEMICAL POLLUTION & CONTROL
## ABSTRACT

Twenty Bacterial isolates from soil rhizosphere of watermelon plants were in vitro screened for their ability to inhibit the mycelial growth of *Fusarium oxysporum f.sp. niveum* (Fon). The causal pathogen of watermelon damping-off and wilt diseases. Among the tested bacterial isolates, three isolates were found to inhibit the mycelial growth of the pathogen. The potential of three plant growth promoting *rhizobacteria*, *Bacillus cereus*, *Pseudomonas fluorescens* and *Pseudomonas putida* as well as Topsin-M alone or in combination was tested for controlling Fon in the greenhouse and field conditions. All tested treatments significantly reduced disease severity as compared to the non-treated infected control. Under greenhouse conditions, the fungicide, thiophanate-methyl (Topsin-M) caused the highest reduction in pre-emergence damping-off and wilt diseases (44.4 and 72.9%, respectively) followed by using *Pseudomonas fluorescens* combined with Topsin-M (37 and 71.8%, respectively). Under field conditions, the highest reductions percentage of disease (67.7.0%) was obtained after application of Topsin-M alone and *Pseudomonas fluorescens* + Topsin-M followed by using of *P. fluorescens* (59.7%) and *Bacillus cereus*+ Topsin-M (51.6%).
ABSTRACT

The inhibitory effect of cell free supernatants (CFS) from several Lactobacillus species on fungal growth and aflatoxin production by the aflatoxigenic strain Aspergillus parasiticus (100%) of fungal growth and aflatoxin production was recorded when CFS of L. casei was placed in a dialysis sac or in the medium without a dialysis sac or by the insertion of A. parasiticus after 16 hours of the insertion of L. casei. Both L. reuteri and L. gasseri inhibited fungal growth and aflatoxin production, but to a lesser extent. CFS of L. acidophilus and L. delbreukii subsp. bulgaricus showed the lowest effect on aflatoxin production as well as on fungal growth. The inoculation of CFS of L. casei, L. gasseri and L. reuteri 16 hours before fungal growth, caused inhibitory effects on fungal growth and aflatoxin production, but these indications were not observed for the other treatments of L. acidophilus or L. delbreukii subsp. bulgaricus.

Regarding spore germination of A. parasiticus treated by the CFS of Lactobacillus species, it was noticed that L. acidophilus recorded the highest inhibitory effect on the germination of A. parasiticus, followed by L. casei, L. reuteri, and L. gasseri, while L. delbreukii subsp. bulgaricus showed the lowest effect. Scanning electron microscopy (SEM) was used to determine the microstructure changes in the conidiophores and spores after treatment with CFS of several Lactobacillus species, where the SEM micrograph showed the presence of great morphological deformation in the conidiophores shape and the number and shape of spores.
ABSTRACT

Toxicity of malathion, profenophos, cypermethrin, fenvalerate, methomyl, propoxure, spinosad and abamectin was tested against larvae of laboratory (S) and three field (AM, AU and W) strains of C. pipiens (L). Based on LC50 values, spinosad was the most toxic compound against the S strain (LC50 = 0.0156 ppb), while fenvalerate and cypermethrin were the most effective insecticides against the three field populations. Values of LC50 for fenvalerate for AM, AU and W strains were 0.497, 0.315 and 0.868 ppb, respectively, and the corresponding values for cypermethrin were 0.898, 0.367 and 1.21 ppb. The carbamate insecticide, methomyl exhibited the least toxic effect against S, AM and AU strains; while the organophosphorus, malathion was the least toxic compound against W strain. Comparing LC50 values of the field strains with those of the laboratory strains (resistance ratio at LC50 level), spinosad showed the highest RR value in AM and AU strains (78.82 and 137.25, respectively). Malathion showed the highest RR value in W strain (1744.46). Slope and RR values revealed that all tested field populations were homogenous in their response toward all tested insecticides except for spinosed. The ability to build up resistance against insecticides from different groups was discussed.
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ABSTRACT

The present work was carried out on some new sesame seeds varieties namely: Toshaka 1, Shndaweel 3 and Giza 32 in an attempt to evaluate the utilization of sesame oil as a source of natural antioxidants. Antioxidative effect of isolated natural antioxidants on the oxidative stability of sunflower oil during heating up to 18 hours was evaluated. The acid value of sunflower oil was increased during heating up to 9 hours and then decreased. The oil samples treated with antioxidants had the lowest amount of free fatty acids, after heating up 9 hours, which is due to a very low degree of hydrolysis in oil as affected by addition of antioxidants. As heating time was increased, peroxide values increased up to 9 hours, and then decreased. The peroxide values were also less in sunflower oil treated with antioxidants, Which was an indication that antioxidants decreased the oxidation of sunflower oil. The addition of antioxidants to sunflower oil was very effective since the TBA values after 18 hours of heating were significantly less than the values of the oil without adding antioxidants. Conjugated diene and triene formation in oil samples increased with heating time up 10 18 hours. Blending of sunflower oil with antioxidants, resulted in a significant decrease in conjugated diene and triene values, compared with control samples. In general it could be concluded that sunflower oil containing natural antioxidants had a much greater oxidative stability than oils without adding antioxidants. Addition of natural antioxidants could increase shelf life of oils. In additions, natural antioxidants are safe impart health benefits to the consumer.