ISSN: 0975 -8542

Journal of Global Pharma Technology

Available Online at: www.jgpt.co.in

RESEARCH ARTICLE

Evaluation of the Efficiency of the Isolated Fungi from Some Insect Species on White Fly Larvae: Bemisia Tabaci (Hemiptera: Aleyrodidae)

H.D. Abdal-Jabar

Tikrit University/Iraq.

Abstract

The study was carried out inorder to isolation and identification of fungi associated with *Formicidae* pp, *Pyrrhocois apterus* and *Coccenilla septempunctata* L. and evaluate of the pathogenic ability of fungi isolated from adult bodies. Isolated fungi represented by *Penicillium compactum, Penicillium janczwskii, Aspergillus terreus, Alternar* of black adult ants, while the fungi were isolated *penicillium chrysogenum, Beauveria bassiana, Aspergillus parasticus, Aspergillus campestris.* From firebug insect, *the fungi were isolated Alternaria chlamydospora, Aspergllus niger, Penicillium compactum, Ulocladium atrum* of beetle insect. The results showed that the highest incidence was for fungi. *Aspergllus niger* and *Penicillium janczwskii* with equal percentage % 24.6, while the lowest incidence was for the two *Aspergillus terreus Ulocladium atrum* 1.5, 3.07 Respectively. The results indicated the superiority of the fungus *Alternaria chlamydospora Aspergillus terreus* to the rest of fungi in attracting adults *Bemisia tabaci* with the highest rate of affint for adults 48.0, 49.0 respectively while the lowest rate of attraction was treated with fungi *Penicillium janczwskii* was 0.3 adult. After five minutes later. The results clear that the highest mortality percentage of white fly was killed in the treatment of fungi *Aspergillus parasticus* and *Ulocladium atrum* the transaction amounted to% 57.17, 58.32 Respectively, while the lowest mortality percentage in the treatment of fungi *Aspergillus sterreus* amounted to% 38.92, It was found that the mortality percentage increased with increasing exposure time as it reached after passing 48, 70, 96,120 hours of treatment.

Keywords: *Isolation, Biological control, Diagnosis, Effect, Fungi, White fly, Mortality percentage.*

Introduction

Insects are the level of the membranes of the wings of social insects and they are related to wasps and bees. If ants are colonies of a size of a few dozen individuals living in small natural cavities to highly organized colonies that may occupy large tracts of land. These colonies consist of sterile, the layers of workers or soldiers are found with the fertile male winged wings and the existence of one of the fertile females called queens. Ants thrive in most biological systems and can form 25-15% of wild animal biomass [1].

Predator bugs are of great importance in maca the use of microbial control in the control of insect pests depends on the amount of information available on these insects has been isolated fungus, bacteria and viruses caused by insect diseases and the first scientific case for insect control by fungi has been recorded in The end of the 19th century found that the effect of fungus on insects was affecting all stages of the insect and could be transmitted to the insect through digestion or through the chittin or both together [2]. The idea of the use of microorganisms, including fungi to resist thousands The most common fungi studied were penicillium janczwskii, Aspergilla terreus of the black ants insect of *A.parasticus* , *A. campestris* from the bacillus to control the white fly *B. Tabaci* [3] and based on the aim of the study was to isolate and diagnose the fungus associated with different types of insects such as lymphocytes, as well as isolating and diagnosing fungi of a type of bugs with the test of the pathogenic ability of isolated fungi against certain economic insects [4].

This is because the problems resulting from the irrational use of pesticides at specialists in the field of plant protection for the trend to alternative means more Amnaaly human health and safety of the environment and at

the same time be effective Kovehvi [2]. The white fly insect *B.Tabaci* spreads in the tropical and subtropical regions, which are characterized by its wide spread and family range. It affects more than 600 plant species, as well as the shortness of its life cycle and the number of its generations in a year and its high fertility, giving it the opportunity to increase steadily over a short period of time, [5] The insect feeds on the absorption of plant juices from the lower surfaces of the leaves and produces a ring containing enzymes that cause damage to the plant and is one of the most dangerous carriers of viral diseases [7].

Materials and Methods

Initialization of Insect Colonies

For the purpose of obtaining pure colonies of the white fly insect B.Tabaci An artificial infection of the tomato seedlings was carried out from the branches of a tomato with a white fly, placed in a wooden cage with dimensions of (3.2) m and with a wooden base. It is surrounded and sealed with a piece of cloth, the insect to reproduce for the purpose of use in subsequent experiments have been replaced seedlings and the most affected by new seedlings whenever needed.

Agricultural Communities Culture Media

Use the prepared medium (PDB), potato dextrose broth, then distribute in 250 mL glass flasks at 150 ml per flask, seal with cotton seals, sterilize with autoclave at 121 ° C and press 15 lb / 2 for 20 min and add chloramphenicol by 250 mg / L before ingestion in dishes for the purpose of isolating and purifying fungus and in other laboratory experiments. [8]

Isolation and Diagnosis of Fungi Associated with the Black Ants' ant and Narwabo accurate and Calculate the Percentage of Emergence

A group of black ants, a fire and a microbial were found in the laboratory of the College of Education for Pure Sciences, where the signs of infection were examined. Wash thoroughly with distilled water and then sterilize with sodium hypochlorite (Naclo) 20% of the commercial solution for 2 minutes and then transfer to sterilized distilled water Two minutes, and then transferred to the filter paper whatman No.1 to remove water from them.

The insect was placed in each sterile 9 cm diameter Petri dish containing the food medium p.D.A. The dishes were incubated at a temperature of -2 + 25 m for 4 days. The samples were 3 samples per insect and isolates of the developing fungi on solid media and identified with taxonomic keys [9, 10, 11].

The percentage of their appearance was calculated according to the following equation:

$$\textbf{Percentage of appearance} = \frac{\text{The number of times mushrooms appear}}{\text{Total number of samples}} \times 100$$

Preparation of Isolated Fungus Fungi

The food medium (PDB Dextrose Broth (Potato) was then distributed in 250 mL glass containers with 150 ml / drip. After that, the flasks containing the liquid medium were sterilized in the Autoclave (steam sterilizer) at 121 ° C and 15 lb / Chloramphenical antibody was added at a rate of 250 mg / l. Vaccinated with three 0.5 cm diameter tablets with cork holes from the fungal colonies. At the age of seven days, the flasks were obtained at a temperature of 2 + 25 ° C with shingles every three to four days to distribute fungal growth. After 28 days, the vaccine was filtered using the filter paper. Using the vacuum pump, the filter was returned using a filter with a filter paper of 0.22 mM. Leachate was used in subsequent experiments. Laboratory work was carried out at the Graduate Laboratory of the Department of Life Sciences, College of Education for Pure Sciences, University of Tikrit.

the effect of fungal masses and their filtration in the attraction or expulsion of white flies Bemisia tabaci

The fungal fungus clusters were divided into each fungus after filtration and were placed with a few lemons of the same fungus in

sterile 9 cm diameter Petri dishes with three replicates. The dishes were placed in breeding boxes containing 50 white fly insects. The experiment consisted of 12 mushroom blocks and sprays. The feeding period is two minutes and five minutes.

Effect of spraying fungal filtration on the loss of white fly mice

The effect of 12 leachate isolates on white fly kidneys was tested by spraying. If 10 insects were placed in 500 cm 3 glass bottles, sprinkle with 3 mL filtrate / repeat using a sterile small sprayer, tested in laboratory conditions at 5 + 25 ° C after 120, 96, 72, 48 hours of treatment and corrected the values according to equation [12].

$$\% \textbf{ Corrected to Kill} = \frac{\text{Ratio of death in treatment - Death ratio in comparison}}{\text{100- Death ratio in comparison}} \times 100$$

Statistical Analysis

All experiments were carried out according to the complete design. C.R.D as single-factor and global experiments. The percentages were analyzed after angular transformation. The mean was compared by the mean of the least significant difference R.l.S.D below the probability level.

Results and Discussion

Isolation and diagnosis of fungi associated with the white fly insect Bemisia tabaci during the study, isolates and diagnosis of 12 fungus belonging to 5 genera were isolated using the PDA mean as shown in Table (1).

Table 1: Types of fungus isolated during the study

Fungi	Type of insects
Alternaria alternate	Black Ants
Aspergillus terreus	Black Ants
Penicillium Janczwskii	Black Ants
Penicillum compactum	Black Ants
Penicillium chrysogenum	Fireball
Aspergillus parasticus	Fireball
Aspergillus campestris	Fireball
Beauveria bassiana	Fireball
ALternaria chamydospora	Abou Dakiq (El Dasouka)
Aspergillus niger	Abou Dakiq (El Dasouka)
Penicillmm compactum	Abou Dakiq (El Dasouka)
Ulocladium atrum	Abou Dakiq (El Dasouka)

Isolate the fungi associated with the black ants insect and fire and daisy and diagnose and calculate the percentages of their emergence

A group of fungus isolates of the black ant ants were isolated and the fire and the daisy were isolated *Aspergillus paricus*, *Aspergillus campestris*, *Aspergillus niger*, *Alternaria chamydospora*, *olocladium atrum* (Table 2).

The same table shows that the most common fungus is a niger. 24.6 %. The lowest fungi were *Ulocladium atrum*, *Aspergillus terreus*, with a percentage of 1.5.3.07% respectively. The results were consistent with other

studies, which indicated the isolation of many fungi from dacias, ants and bugs, some of which were insect pathogens [15].

It also managed to isolate fungi from insects [16]. Fungal mentioned in the research.

Table 2: isolated fungi of the black ant's insect and the fire and daisy and percentages of emergence

Percentage of Fungi	Number of appeared fungi	Fungi
1.5 e	1	*Ulocladium atrium*
3.07 e	2	*A .terreus*
6.1e	4	*A . compestris*
9.2F	6	*Penicillium compactum*
12.3C	8	*P. chrysogenum*
9.2 F	6	*Beauveria bassiang*
18.4B	12	*A. parasticus*
24.6 A	16	*P. Janczwskil*
12.3C	8	*ALternaria alternate*
24.6 A	16	*A . niger*
9.2F	6	*Penicillium compactum*
0.0	0.0	control

Characters with similar characters mean that there are no significant differences between the mean of the Dunkin multichannel tests at the 5% probability level

Effect of fungal masses and filtration of a number of fungi isolated in the attraction or expulsion of white fly totes Tuta absoluta. Table 3 shows that the species *Aspergillus sterreus*, *Alternaria chlomydospor* were most attractive to the whole insects and significantly higher than the rest of the treatments. The rate of insects was 33.8, 35.8, respectively. The number of insects attracted in the first minutes (15.6.17.6) the fifth minute was 49.0, 48.0), respectively, while Penicillium janczwskii was the least insect-catching at 0.3, 0.3 insect per second and fifth minute, whereas control was 0.0 for all treatments. The reason is due to the color of the fungal mass N White color attracts whita [17] the color of features of Aftr recorded a 0.0 and scored in five minutes– 2 .

Table 3: Effect of fungal masses and filtration of a number of fungi isolated in the attraction or expulsion of white fly

Attracted fungi			Fungal extract
Mean	5: Minutes	2: Minutes	
12.8	19.6c	6.0	*P.compactum*
11.15	19.3c	3.0	*P.chrysogenu m*
6.15	11.3d	1.0	*A.parasticus*
28.1	40.8b	15.6	*Beauveria bassiana*
13.45	20.3c	6.6	*Ulocladium atrum*
0.55	0.8e	0.3	*P . Jan czwskii*
13.45	21.3c	5.6	*Alternaria alternate*
14.45	21.6c	7.3	*A.comperstris*
17.3	28.3c	6.3	*A.niger*
27.15	45.0b	11. 3	*A.compestris*
31.8	48.0A	15 .6	*Al ternaria chlomydospora*
35.8	49.0A	17.6	*A .sterreus*
0.0	0.0	0.0	vontrol

Also, these two fungi are characterized by the odor of the white fly, while the lack of gravity of the fungus is due to the unpleasant smell of the fungus, which acts as insect repellent Characters with similar characters mean that there are no significant differences between the mean of the Dunkin multichannel tests at the 5% probability level

Effect of sprinkling fungal filtration on the death of white fly kidneys:Table 4 shows the superiority of *P. janczwskii* with a significant difference of 37.8%, while the fungus *A terreus* achieved the lowest killing rate of 11.9% after 48 hours of treatment, and the *janczwskii* fungus exceeded 57.4% A niger had the lowest mortality rate of 31.7% after 72 hours of treatment. *Ullocadium atrum* was 69.4%, while *Acompestris* had the lowest kill rate of 45.6% after 96 hours of treatment. As for the fungi that achieved a killing rate within 120 hours, it reached 90% for all fungi, while control recorded 0.0 for all treatments.

Table: 4 Effect of the fungal masses and their filtration in the attraction or expulsion of the white fly whole.

Number of fly whole	Percentage of killing during one hours					Fungal extracts
	Mean of inhibition	120	96	72	48	
71.0	51.85A	90.0	57.4	37.8	22.2	*P .compactum*
38.0	50.82A	90.0	55.3	35.3	22.2	*P. chrysogcnum*
0.0	58.6A	90.0	59.2	47.4	37.8	*Jan czwskil P.*
0.0	38.92C	90.0	61.0	37.8	11.9	*A . terreus*
0.0	54.70A	90.0	64.2	39.8	24.8	*Beauveria bassiana*
0.0	57.17A	90	69.4	39.8	29.5	*ULocladium. Atrum*
0.0	58.32A	90.0	64.2	47.5	31-6	*A.parasticus*
0.0	56.00A	90	66.7	37.8	29.5	*Alternaria alternate*
55.0	47.22B	90.0	49.4	27.3	22.2	*A.compeslris*
0.0	47.87B	.0 90	49.4	27.3	24.8	*A.niger*
0.0	53.62A	90 .0	59.5	37.8	27.2	*P.compactum*
		90 .0	59.60	34.37	25.79	mean
0.0	0.0	0.0	0.0	0.0	0.0	control

References

1. DR Sosa-Gómez, SB Alves (2000) Temperature and relative humidity requirements for conidiogenesis of *Beauveria bassiana* (Deuteromycetes: Moniliaceae) An. Soc. Entomol. Brasil, 29: 515-521.
2. HE Cabanillas, WA Jones (2009) Pathogenicity of *Isaria* sp. (Hypocreales: Clavicipitaceae) against the sweet potato whitefly B biotype, *Bemisia tabaci* (Hemiptera: Aleyrodidae) Crop Prot., 28: 333-337.
3. AGS Cuthbertson, LF Blackburn, P Northing, W Luo, RJC Cannon, KFA Walters (2009) Leaf dipping as an environmental screening measure to test chemical efficacy against *Bemisia tabaci* on poinsettia plants Int. J. Environ. Sci. Tech., 6 (3): 347-352.
4. MA Jackson, CA Dunlap, S Jaronski (2010) Ecological considerations in producing and formulating fungal entomopathogens for use in insect biocontrol BioControl, 55: 129-145.
5. G Zimmermann (2008) The entomopathogenic fungi *Isaria farinosa* (formerly *Paecilomyces farinosus*) and the *Isaria fumosorosea* species complex (formerly *Paecilomyces fumosoroseus*): biology, ecology and use in biological control Biocontrol Sci. Techn., 18: 865-901.
6. Markham PG, Bedford ID, lIU s (1994) The transmission of Gemini viruses by *Bemisia taba*i Pestic. Sci., 42(2): 123-128.
7. MA Jackson, CA Dunlap, S Jaronski (2010) Ecological considerations in producing and formulating fungal entomopathogens for use in insect biocontrol BioControl, 55: 129-145.
8. Pitt JI, Hocking AD, Bhudhasamai K, Miscamble BF, Wheeler KA, Tanboon EK P (1943) The normal mycoflora of commoolities from Thailand.1.nuts and

oilseeds. Int. J. food microbial., 20: 211-226.

9. TM Butt, MS Goettel (2000) Bioassays of entomopathogenic fungiA. Navon, K.R.S. Ascher (Eds.), Bioassays of Entomopathogenic Microbes and Nematodes, CAB International, Wallingford, UK, 141-195.
10. Raper KB, Fennel DI (1973) The genus Aspergillius Robert E. Krieger Publ. New York, 686.
11. Domsch KH, Gamms W, Anderson TH (1980) Copendium of soil fungi, 1: 859.
12. Abbott WS (1925).A method of compucting the effectiveness of an insecticide. J. Econ. Entomol., 18(2):265-267.
13. DR Jones (2003) Plant viruses transmitted by whiteflies Eur. J. Plant Pathol., 109: 195-219.
14. Lacey LA, Wright SP, Kirk AA (2008) Entomopathogenic fungi for control of *Bemisia tabaci* biotype B: foreign exploration, research and implementation. In: Gould, J., Hoelmer, K., Goolsby, J. (Eds.), Classical Biological Control of *Bemisia tabaci* in the United States-A Review of Interagency Research and Implementation. Progress in Biological Control, 4: 33-69.
15. 1GM Mascarin, ED Quintela, EG Silva, SP Arthurs (2013) Precision micro-spray tower for application of entomopathogens BioAssay, 8: 1-4.
16. E Quesada-Moraga, EA Maranhão, P Valverde-Garcia, C Santiago-Álvarez (2006) Selection of *Beauveria bassiana* isolates for control of the whiteflies *Bemisia tabaci* and *Trialeurodes vaporarium* on the basis of their virulence, thermal requirement and toxicogenic activity Biol. Control, 36: 274-287.
17. Sanchez, Arroy H, Capinera L (2007) House fly *Muca domestica L. Distribution,* importance, life cycle, description .University of Florida. N.Eeny.48.
18. FA Shah, N Allen, CJ Wright, TM Butt (2007) Repeated in vitro sub culturing alters spore surface properties and virulence of *Metarhizium anisopliae* FEMS Microbiol. Lett., 276: 60-66.
19. Lalor J H, Chinnici JP, Liewellyn GC (1976) Effect of fungal metabolite, aflatoxin B1 on larval viability and gross morphology in *Drosophila melanogaster* in press. J. Microbiology, 17: 210-215.

