EFFECT OF COTTON SEED DELINTING ON SEED-BORNE FUNGI, EMERGENCE AND SEEDLING DISEASE INCIDENCE

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Abstract

Recently, delinted cotton seeds are being widely used. Different insecticides and fungicides were screened-out with delinted and undelinted cotton seeds against *Rhizoctonia solani* under greenhouse conditions.

In the laboratory, undelinted, undressed seeds had all the isolated fungi with the highest frequency while acid delinted seeds dressed with Monceren 47% + Gaucho gave the lowest frequency of isolated fungi.

The most prevalent isolated fungi was *Aspergillus* spp. and the least frequently isolated fungi was *Mucor* sp.

Mechanically delinted seeds, dressed with Monceren 25% gave the highest seedling emergence frequency and the highest percentage of surviving seedling (in infested soil). While acid delinted seeds untreated with fungicide gave the lowest seedling emergence frequency and the lowest percentage of surviving seedling (in infested soil).

Acid delinted seeds dressed with Monceren 25% exhibited the highest speed of germination in non-infested soil, while the lowest speed of germination was obtained from acid delinted without seed dressing in infested soil.

Seeds dressed with Monceren 25% gave the largest plant heights when it was mechanically delinted and grown in non-infested soil, while it gave the lowest plant heights when acid delinted and grown in infested soil.

Undressed mechanically delinted seeds grown in non-infested soil exhibited the highest dry weight. Acid delinted, untreated seeds grown in infested soil gave the lowest dry weight.

A positive significant correlation coefficient was found between frequency of *Penicillium* spp. and percentage of infection.

INTRODUCTION

Rhizoctonia solani Kuhn is one of the most important pathogens causing damping-off in cotton. The hazards of the disease surpass the use of high seeding rates and costs of resowing. It was observed that resowing in late maturing cultivars increased the chance of attack by the late season cotton pests, particularly boll worms.

Fuzzy seeds showed a higher incidence of infection by seedling disease pathogens compared to delinted seeds (Taneja and Sheo-Raj, 1988 and Helal *et al.*, 1997).

Fuzz coverage of seeds in 9 cotton cultivars ranged from 1.72 to 4.15 and 15.6 to 32.10% on a weight and area basis, respectively. Fuzz weight reflected this trend, ranging from 1.82 to 3.80 mg/seed (Eid *et al.*, 1985).

Different reports reflected the effect of delinting methods on seed quality (Parameshwar and Shankara, 1984; Poswal *et al.*, 1992; Kattes *et al.*, 1993).

Using machine-delinted seed with polymer coating allowed the seed to slip and be sown individually. It avoided the hazards and expense associated with the use and disposal of sulfuric acid or hydrogen chloride gas residues in acid-delinting. Moreover, it avoided the additional steps needed for seed neutralization and insecticides seed treatments of acid delinted seed because the polymer coating is premixed with insecticides (De Vay *et al.*, 1995).

The purpose of this investigation was to study the effect of delinting method and seed treatment with Monceren singly and combined with Gaucho on:

1. Population of fungi on seeds.
2. Seedling emergence, diseased seedlings and percentage of surviving healthy seedlings.
3. Seedling growth reflected by the speed of emergence, plant height and dry weight.
4. Correlation coefficients between frequency of seed-borne fungi isolated from seeds of Giza 86 and percentage of infection (pre-and postemergence damping-off).

MATERIALS AND METHODS

Samples of certified seeds of Egyptian cotton cultivar Giza 86 (2 kg /sample) were divided into 3 portions, treated as follows:

A. Acid delinted with 11% conc. sulphuric acid.

b. Mechanically delinted.

c. Non-delinted seeds (control).

Prior to seeding seeds were treated with:

1. Monceren 25% (fungicide); (4-chlorophenyl)-N- cyclopentyl-N-phenylurea (C.A.) at the rate of 3.0 g/kg seed.
2. Monceren 47% (fungicide) (3g/kg) + Gaucho 70% (insecticide). (6-chloro-3-pyridinyl) methyl-N-nitro-2-imidazolidin-imine) applied at the rate of 4.9 g/kg seed using Triton-B as a spreader-sticker and treated seeds were left 24 hours to dry before sowing.

Seeds were divided into nine portions representing the different treatments (lint removal methods and seed dressing with fungicides and insecticide) mentioned before. Control seeds (undelinted and undressed) were used.

In the laboratory, all nine treatments were examined by two seed testing methods:

I. Blotter method (BM):

Hundred seeds were randomly selected from each treatment and placed onto four blotters moistened with water in Petri-dish (25 seeds for each). Plates were incubated for seven days at 20°C and exposed to fluorescent white light for 12 hours daily.

II. Deep-freezing blotter method (DFBM):

The preparations and procedures were the same as for BM, except that the plates were transferred to darkness at -20°C after incubation for 24 hours. Then, they were incubated for five days at 20°C under diurnal light (12 hrs.).

The developing fungal colonies were purified and were maintained on PDA slants for further studies. Isolated colonies were frequently counted.

In the greenhouse, the soil was infested with a highly virulent isolate of *R.solani* isolated from a diseased cotton seedling collected from Giza Experimental Station. The inoculum was thoroughly mixed with the soil at the rate of 0.05% w/w. The infested soil was slightly moistened with tap water and kept for 14 days before planting.

Tests comprising five replicates were set up with clay pots No. 15 (10 seeds sown/pot). The following observations were recorded:

1. Percentage of emerging seedlings, diseased seedlings and surviving healthy cotton seedlings was calculated.
2. Speed of emergence, was calculated using the formula suggested by Kotowiski (1926).

   $$\text{Speed of emergence} = \varepsilon \frac{n}{D} \times \frac{100}{\varepsilon n}$$

   Where, D = Number days elapsed from sowing.
   n = daily emergence.
3. Seedling growth in terms of plant height, and dry weight were estimated from ten representative plants chosen at random from each treatment.

Data were statistically analyzed (Snedecor and Cochran, 1967), and the least significant difference (LSD) was applied to test the differences between means.

Correlation coefficients between frequency of seed borne fungi isolated from seeds and the percentage of infection (pre-and post emergence damping-off) were calculated.

RESULTS AND DISCUSSION

1. Laboratory tests:

1.1. Pathological properties:

Data in Table (1) show that the tested pesticides had a great effect on the frequency and fungal genera contaminating cotton seeds. *Aspergillus sp.* was the most frequently isolated fungus showing up in all treatments, followed by *Rhizopus nigricans*, *Penicillium* sp. and *Alternaria* alternata, in a descending order. *Mucor* sp. was the least frequently isolated.

Deep freezing method (DFM) gave higher values than Blotter method (BM) with most fungi except with *Penicillium* sp. Moreover, some fungi were only isolated using (DFM) such as *Cephalosporium* sp., *Fusarium moniliforme, Mucor* sp. and *Papulospora* sp.

Undelinted and undressed seed had all the isolated fungi with the highest frequency compared with the other treatments, while acid delinted seeds of G.86 and dressed with Monceren 47% + Gaucho 70% gave the lowest frequency of isolated fungi.

Referring to isolated fungi from cotton seeds, Soleymani *et al.* (1993) reported that the most common fungi isolated from seeds from the major cotton producing areas, were *Rhizoctonia solani, Fusarium moniliforme, F.buharicum, F.equisiti* and *Alternaria* spp.

Mansoori and Hamdolahzaden (1995) mentioned that several fungi including *Alternaria alternata, Aspergillus niger, Fusarium acuminatum, Fusarium solani, Pythium ultimum, Rhizopus arrhizus* and *Rhizoctonia solani* were isolated from seeds and pre-emergence damped off seedlings and suggested that these fungi originated from the seed invaded during boll dehiscence.

Such variations of the types of fungi associated with seeds can easily be attributed to differences in the environmental factors, physical, chemical and biologi-

Table 1. Frequency of isolated fungi/100 seeds associated with seeds of Giza 86 cotton cultivar after different treatments of lint removal and seed dressing by two seed testing methods .

Treatments / Isolated fungi	Acid delinted		Acid delinted + Moncern 25%		Acid delinted + Moncern47% + Gaucho		Mechanical delinted		Mechanical delinted + Moncern 25%		Mechanical delinted + Moncern47% + Gaucho		Undelinted seeds		Undelinted seeds + Moncern 25%		Undelinted seeds + Moncern47% + Gaucho	
	BM	DFM	BM	DFM	BM	DFM	BM	DFM	BM	DFM	BM	DFM	BM	DFM	BM	DFM	BM	DFM
Alternaria alternata	-	8	4	12	8	-	-	24	-	32	-	6	20	84	8	4	16	6
Aspergillus spp.	80	100	88	90	16	40	92	100	70	100	32	32	100	100	100	100	74	100
Cephalosporium sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	32	-	-	-	-
Cladosporium spp.	-	-	-	4	-	4	-	-	-	-	-	4	-	12	-	-	6	6
Fusarium moniliforme	-	24	-	18	-	4	-	24	-	22	-	8	-	40	-	-	-	-
Mucor sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	6	-	-	-	-
Papulospora sp.	-	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	-	-
Penicillium spp.	12	44	84	40	8	-	58	20	-	-	-	-	88	32	94	18	12	8
Rhizopus nigricans	24	100	26	34	-	10	-	100	74	100	-	-	14	100	18	100	8	100
Stemphylium botryosum	-	8	-	-	2	-	-	10	-	-	-	-	-	6	2	2	-	-
Trichoderma spp.	-	-	-	-	6	-	-	-	-	-	-	-	-	6	-	6	-	-

* BM = Blotter method.
* DFM = Deep-freezing blotter method.

cal. Also, it depends on the frequency of boll rotting incidence and the fungi involved.

In the present work, as previously mentioned, *Aspergillus, Penicillium, Rhizopus, Fusarium moniliforme*, and *Alternaria* are predominating. Such fungi are of wide spread occurrence and represent mostly a large group of saprophytically occurring fungi with high competitive abilities.

Deep freeze blotter method (DFBM) may appear as being more efficient in disclosing the presence of certain fungi; however, this could not be true in all cases. The freezing process may partially convert the seed tissues to an organic substrate for the growth of different saprophytes occurring at extremely low concentration. Therefore, the blotter method is more suitable and meaningful for expressing the true picture of seed-borne fungi. Unless seeds are surface disinfected prior to incubation, it is recommended to use the blotter method.

2. Greenhouse tests:

2.1. Percentage of seedling emergence, diseased seedling and surviving healthy seedlings:

Data in Table 2 show the effect of either acid or mechanical delinting, and the treatment with pesticides (Monceren 25%, Monceren 47% + Gaucho 70%) on a number parameters. Percent emergence varied among treatments. The highest level of emergence in infested soil occurred in the treatment involving mechanical delinting and dressing seeds with Monceren 25% being 88%. An unsually low emergence of 6% occurred with acid delinted seeds sown in infested soils indicating the possibility of damage to the embryo in that particular instance and not in other acid treatments. Similar results on that depressive effect of acid delinting may occur as reported by Eid *et al.* (1985). Khah and Passam (1994) through tetrazolium tests on delinting seeds mentioned that the decrease in germinability (30%) was associated with a loss in seed viability and soundness.

The percentage of diseased seedlings and consequently the survivals varied from zero in the case of mechanical delinting and seed dressing with both Monceren 47% and Gaucho 70% to 46.67% in the undelinted seeds receiving the same pesticide treatment, which can be considered as the control of the delinting process. The undelinted seeds without pesticidal treatment gave disease percentage of 44% which is the comparison base line for combined treatments, delinting and pesticides. Mechanical delinting alone showed only 11.11% diseased seedlings which may indicate

Table 2. Percentage of emergence, diseased seedlings, surviving healthy cotton seedlings, speed of emergence, plant height (cm) and dry weight/plant (g) at fifty days old as affected with seed delinting method and dressing for Giza 86 cotton cultivar grown in soil inoculated with *R.solani* fungus under greenhouse conditions.

Treatments	Emergence %	Diseased seedlings %	Survival healthy cotton seedlings %	Speed of emergence %	Plant height (cm)	Dry weight/plant (g)
Infested soil						
Acid delinted.	6	66.67	33.33	4.33	17.50	5.18
Acid delinted + Monceren 25%.	58	6.90	93.10	16.31	16.20	7.06
Acid delinted + Monceren 47% + Gaucho.	78	17.95	82.05	17.99	18.90	7.52
Mechanical delinted.	72	11.11	88.89	20.62	16.80	7.03
Mechanical delinted + Monceren 25%.	88	2.27	97.73	20.40	17.90	7.59
Mechanical delinted + Monceren 47% + Gaucho.	74	0	100	20.34	17.2	7.32
Undelinted seeds.	50	44	56	18.06	16.80	7.39
Undelinted seeds + Monceren 25%.	44	4.55	95.45	15.72	17.90	7.80
Undelinted seeds + Monceren 47% + Gaucho.	60	46.67	53.33	16.50	13.97	6.79
Non-infested soil						
Acid delinted.	74	2.70	97.30	18.92	25.90	8.99
Acid delinted + Monceren 25%.	70	5.71	95.29	20.94	24.40	7.97
Acid delinted + Monceren 47% + Gaucho.	76	0	100	18.22	22.95	9.07
Mechanical delinted.	76	0	100	20.19	26.50	9.75
Mechanical delinted + Monceren 25%.	78	0	100	19.93	26.80	9.59
Mechanical delinted + Monceren 47% + Gaucho.	78	0	100	18.81	23.10	7.54
Undelinted seeds.	80	27.50	72.50	19.55	22.30	7.72
Undelinted seeds + Monceren 25%.	42	23.81	76.19	19.45	21.55	8.85
Undelinted seeds + Monceren 47% + Gaucho.	56	0	100	14.80	16.55	7.26

L.S.D. for		Seedling emergence		Healthy cotton seedlings		Speed of emergence (%)		Planting height (cm)	
		5%	1%	5%	1%	5%	1%	5%	1%
Fungicides	(F)	1.30	1.72	13.01	17.31	9.73	12.94	0.81	1.06
Infested & Non-infested soil	(S)	1.06	1.41	10.62	14.13	7.95	10.57	0.66	0.87
Delinting method	(D)	1.30	1.72	13.01	17.31	9.73	12.94	0.81	1.06
F x S		1.83	2.44	18.40	24.47	13.76	18.31	1.15	1.51
F x D		2.25	2.99	22.54	29.97	16.86	22.42	1.40	1.84
S x D		1.83	2.44	18.40	24.47	13.76	18.31	1.15	1.51
F x S x D		3.18	4.22	31.87	42.38	23.84	31.71	1.98	2.61

that delinting had freed the seeds from some charge of surface infestation with certain fungi contributing to the disease complex as compared to the values relevant to the undelinted seeds. The survivals differed according to the treatment reaching 100% when seeds were mechanically delinted and treated with Monceren and Gaucho. Undelinted seeds with no pesticides resulted in 56% survival in infested soil. It is obvious that pesticidal treatment improved % emergence and survivals was also increased as a result of reducing % diseased seedlings. However, some reduction in survivals were detected in some treatments involving Gaucho of some mechanical delinting treatments.

Taneja *et al.* (1988) concluded that fuzzy seeds showed a higher incidence of infection that delinted seeds. This is expected as the fuzz may carry contaminating fungi. Onkar *et al.* (1983) reported that delinting cotton seeds with sulphuric acid and treated with ash markedly increased the germination percentage and decreased percentage of seeds infected by seed microflora compared with cow dung-delinted and undelinted seeds. Poswal *et al.* (1992) stated that acid delinted seeds gave higher percentage of germination and seedling emergence compared with machine delinted seeds. Kattes *et al.* (1993) reported that field emergence percentage was greater for acid delinted seed than brush delinted seed in 1990, with no difference being noted during 1991. Youssef *et al.* (1995) concluded that delinting G. 45 seeds once and G.75 seeds twice by using the brush delinting machine exhibited the best results, giving the highest seedling emergence frequency, the lowest diseased seedling frequency and the highest percentage of surviving seedlings. Helal *et al.* (1997) reported that seeds of G.75 cotton cv. delinted with 40% diluted sulfuric acid, dressed with Rizolex gave the highest seedling emergence and the highest percentage of surviving seedling in greenhouse experiment. De Vay *et al.* (1995) noted that comparisons of polymer-coated machine delinted cotton cv. with acid delinted seed showed no significant differences in seedling stands and lint yields.

From the results in Table (2) it can be concluded that mechanically delinted seeds of G.86 and dressed with Monceren 25% before planting in infested soil in the greenhouse exhibited the best results, where it gave the highest seedling emergence frequency (88%) and the highest percentage of surviving seedlings (86%). Acid delinted seeds of G.86 and not treated with fungicides (Monceren) or insecticides (Gaucho) before planting in infested soil in the greenhouse gave the lowest seedling emergence frequency (6%) and the lowest percentage of surviving seedling 33.33%. These findings were in agreement with Youseef *et al.* (1995) who stated that Monceren exhibited the best results by dressing the seeds of G.45 or G.75 with this fun-

gicide before planting in the infested soil with *R.solani*, and they added that it had no effect on the seedling emergence, diseased seedling or surviving seedling if the soil in which the seeds were planted was non-infested.

2.2. Speed of emergence:

The results on the speed of emergence of G.86 cotton cultivar in soil infested with *R.solani* in the greenhouse as affected with seed delinting method and seed dressing are shown in Table (2).

The results show, in most cases, that mechanically delinted seeds exhibited the highest speed of germination followed by undelinted seeds with highly significant differences with acid delinted seeds. Monceren 47% + Gaucho as seed dressing before planting gave the highest speed of germination followed by Monceren 25% fungicide with significant differences with untreated seeds before planting. Speed of germination was higher in seeds of G.86 planted in non-infested soil than infested soil with highly significant difference.

The highest speed of germination (20.94) was obtained with acid delinted seeds dressed with Monceren 25% before planting in non-infested soil. On the other hand, the lowest value for the speed of germination (4.33) was obtained with acid delinted seeds of G.86 not receiving seed dressing.

Eid *et al.* (1985) mentioned that delinting accelerated germination; final germination percentage varied between nine cotton cv. for fuzzy and delinted seed. Seed treatment with sulphuric acid depressed germination.

Galanopoulou and Hlihlias (1982) noted that delinted seeds emerged slightly earlier than untreated seeds.

Lancon and Klassou (1988) reported that seeds delinted with concentrated sulphuric acid (11%) germinated sooner than fuzzy seeds. Acid treatment may have affected the rigidity of seed coats which may have resulted in fine cracks which facilitate earlier emergence.

2.3. Seedling growth:

2.3.1. Plant height:

The results of plant height at fify days old as affectted by seed delinting and dressing for Giza 86 cotton cultivar, grown in *R.solani* infested soil under greenhouse conditions are presented in Table (2).

The results show that mechanically delinted seeds of G.86 gave the highest plant heights followed by acid delinted seeds but undelinted seeds gave the least plant height when compared in non-infested soil. Seeds of Giza 86 planted in non-infested soil gave significantly higher plants compared with those planted in infested soil with highly significant difference. Regarding the effect of seed dressing with tested fungicides and insecticides, the highest plants were obtained from untreated seeds followed by those resulted from seeds treated with Monceren 25%, while the shortest plants were obtained from seeds treated with Monceren 47% + Gaucho with highly significant differences.

Planting the mechanically delinted seeds of G.86 cultivar after dressing them with Monceren 25% exhibited the highest plant heights (26.8 cm) for the plants grown in non-infested soil.

2.3.2. Plant dry weight:

The results of the influence of lint removal method and seed dressing on the dry weight of the plants at 50 days old for G.86 cotton cultivar grown in soil inoculated with *R.solani* in the greenhouse are shown in Table (2).

The results show that the plants grown in non-infested soil gave the highest dry weight compared with those grown in infested soil. The highest dry weight (9.748 grams) was obtained from the plants grown in non-infested soil and resulted from pesticide untreated and mechanically delinted seeds, while acid delinted seeds and undressed gave the lowest dry weight (5.176 grams). However, Poswal *et al.* (1991) reported that acid delinted seeds gave more vigorous seedlings.

Data in Tables (3 and 4) show the correlation coefficients between frequency of seed-borne fungi isolated from Giza 86 and the percentage of infection (pre-and post emergence damping-off). A positive significant correlation coefficient was found between frequency of *Penicillium* spp. and percentage of infection at (0.10). Also, there were significant correlation coefficients at (0.10) between frequency of each of *Aspergillus* sp. and *Rhizopus nigricans, Cladosporium* and each of *Mucor* sp., *Papulospora* sp. and between *Cladosporium* and each of *Alternaria alternata* and *Cephalosporium* sp.

Significant positive correlation coefficients at (0.05) were also found between frequency of *Rhizopus nigricans* and *Fusarium moniliforme* and between *Penicillium* sp. and *Aspergillus* sp. and between *Fusarium moniliforme* and each of *Mucor* sp., *Papulospora* sp., *Alternaria alternata* and *Cephalosporium* sp. Highly significant positive correlation coefficients at (0.01) were found between the frequency of

Table 3. Frequency of isolated fungi combined by the two seed testing methods from 100 seeds associated with Giza 86 of cotton seeds after different treatments of lint removal and seed dressing.

Isolated fungi \ Treatments	Acid delinted	Acid delinted + Monceren 25 %	Acid delinted + Monceren 47% + Gaucho	Mechanical	Mechanical + Monceren 25%	Mechanical + Monceren 47% + Gaucho	Undelinted	Undelinted + Monceren 25 %	Undelinted + Monceren 47% + Gaucho
X1 *Alternaria alternata*	8	16	8	24	32	6	104	12	22
X2 *Aspergillus* spp.	180	178	56	192	170	64	200	200	174
X3 *Cephalosporium* sp.	-	-	-	-	-	-	32	-	-
X4 *Cladosporium* spp.	-	4	4	-	-	4	12	-	12
X5 *Fusarium moniliforme*	24	18	4	24	22	8	40	-	-
X6 *Mucor* sp.	-	-	-	-	-	-	6	-	-
X7 *Papulospora* sp.	-	-	-	-	-	-	8	-	-
X8 *Penicillium* spp.	56	124	8	78	-	-	120	112	20
X9 *Rhizopus nigricans*	124	60	10	100	174	-	140	18	108
X10 *Stemphylium botryosum*	8	-	2	10	-	-	6	4	-
X11 *Trichoderma* spp.	-	-	6	-	-	-	6	6	-
X12 % of infection (pre- and post emergence)	28	34	24	24	22	22	46	68	44

Alternaria alternata and each of *Cephalosporium* sp., *Papulospora* sp. and *Mucor* sp., and between *Mucor* sp. and each of *Alternaria alternata, Cephalosporium* sp. and *Papulospora* sp. (Tables 3 and 4).

Generally, the frequency of seed-borne *Penicillium* sp. (X 8) was positively correlated with percentage of infection in cotton seedling (pre and post emergence damping-off). The fungi often associated with deteriorated seed are *Fusarium* spp. (Klitch, 1986) and *Rhizopus* spp. (Davis, 1981).

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Table 4. Correlation coefficient between frequency of seed borne fungi isolated from Giza 86 and percentage of infection.

Trait	X12	X11	X10	X9	X8
X1 *Alternaria Alternata*	0.2367	0.3815	0.2307	0.5397	0.4997
X2 *Aspergillus* spp.	0.5218	- 0.0683	0.4363	0.6222	0.6797 *
X3 *Cephalosporium* sp.	0.2743	0.5000	0.2582	0.3516	0.4446
X4 *Cladosporium* spp.	0.2503	0.2041	- 0.2635	0.1310	0.0659
X5 *Fusarium moniliforme*	- 0.2371	0.0493	0.5093	0.6685 *	0.3901
X6 *Mucor* sp.	0.2743	0.5000	0.2582	0.3516	0.4446
X7 *Papulospora* sp.	0.2743	0.5000	0.2582	0.3516	0.4446
X8 *Penicillium* spp.	0.5985	0.3196	0.4200	0.0379	
X9 *Rhizopus nigicans*	- 0.1358	- 0.3075	0.2472		
X10 *Stemphylium botryosum*	0.0417	0.1291			
X11 *Trichoderma* spp.	0.5487				

Trait	X7	X6	X5	X4	X3
X1	0.9591 **	0.9591 **	0.7228 *	0.5873	0.9591 **
X2	0.2866	0.2866	0.4304	0.0109	0.2866
X3	1.0000 **	1.0000 **	0.6780 *	0.6124	
X4	0.6124	0.6124	0.0755		
X5	0.6780 *	0.6780 *			
X6	1.0000 **				

Trait	X2
X1	0.4184

* Significant.

** Highly significant.

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تأثير نزع زغب بذرة القطن على الفطريات المحمولة على البذرة، والإنبات وإصابة البادرات

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فى السنوات القليلة الماضية جرى استخدام بذرة القطن منزوعة الزغب فى بعض حقول القطن فكان لابد من دراسة تأثير نزع الزغب على صفات البادرات الناتجة وعلى سلوكها بالنسبة للأمراض.

استخدمت فى هذه الدراسة كميات مناسبة من بذور القطن صنف جـ٨٦ نزع الزغب منها باستخدام : أ – حامض كبريتيك (١١٪) ب– نزع ميكانيكى.

ثم عوملت بالمطهر الفطرى مونسرين ٢٥٪ أو مونسرين ٤٧٪ + المبيد الحشرى جاوشو.

– وتم إجراء دراسات معملية لعزل الفطريات الموجودة على بذرة القطن فى المعاملات تحت الدراسة وذلك بطريقتين مختلفتين للعزل (طريقة ورق النشاف وطريقة التجميد).

– البذور الغير منزوعة الزغب والغير معاملة بالمطهرات الفطرية تم عزل جميع الفطريات المتحصل عليها فى هذا البحث منها.

– العزل بطريقة التجميد ساعد على ظهور فطريات لم تستطع الظهور عند استخدام طريقة ورق النشاف فى العزل.

– كان الفطر .Aspergillus spp أعلى تعداد بين الفطريات المعزولة بينما كان الفطر.Mucor sp أقلها تكراراً.

– فى الصوبة تم زراعة البذور من المعاملات المختلفة فى تربة حقل طبيعية وأخرى معدية بفطر الريزوكتونيا سولانى.

أعطت البذور منزوعة الزغب ميكانيكياً والمعاملة بالمطهر الفطرى مونسرين ٢٥٪ والمزروعة فى التربة المعدية أعلى نسبة من البادرات المتكشفة والبادرات السليمة.

– أعلى سرعة إنبات وجدت فى حالة البذور المنزوع زغبها بالحامض والمعاملة بالمطهر الفطرى مونسرين ٢٥٪ فى حالة زراعتها فى التربة الغير معدية.

– أطول النباتات التى حصل عليها كانت تلك الناتجة من بذور القطن المنزوع زغبها ميكانيكياً ومعاملة بالمونسرين ٢٥٪ فى حالة زراعتها فى التربة الغير معدية.

– أكبر وزن جاف للنباتات أمكن الحصول عليه فى حالة زراعة البذرة المنزوعة الزغب ميكانيكياً وغير معاملة بالمطهرات ومزروعة فى التربة الغير معدية.

– أظهرت دراسة الارتباط بين نسبة الاصابة فى التربة الغير معدية والفطريات المعزولة من معاملات البذرة وجود ارتباط معنوى موجب بين تعداد الفطر .Penicillum sp والنسبة المئوية للإصابة بمرض موت البادرات.