THE RELATIVE SUSCEPTIBILITY OF CERTAIN DATE PALM LEAF VARIETIES TO *ENNEADESMUS TRISPINOSUS* (COLEOPTERA : BOSTRICHIDAE) INFESTATION

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Abstract

The powder post beetle, Enneadesmus trispinosus Olivier (Coleoptera : Bostrichidae) is an economic pest on date palm leaves in Egypt. During 1992, midribs of seven date palm varieties were tested for their relative susceptibility to the pest's infestation. Midribs of the varieties showed the following descending rate of infestation : " Males" , , "Manthour" , "Zaghloul", "Samani", "Haiani", "Tamr" and "Seeidi (or Seewi) " (26.3 , 21.7 , 20.1, 15.3, 13.5, 2.6 and 0.5% in facultative trials and 23.2, 21.3, 20.5, 16.8, 11.8, 11.5, 4.9 and 1.8% in obligated trials). Although Seeidi (Seewi.) variety showed slight liability to the pest's infestation, in obligated trials, infestation somewhat increases. Seeidi variety could be of some importance in manufacturing date palm midrib.

INTRODUCTION

Date palm (*Phoenics dactylifera* L.) is an important crop and a source of wood. Leaf midribs are liable to severe infestation with several bostrichid wood borers such as *E.trispinosus* Oli. *E. obtusedentatus* Lesne, *E.forficula* Farm., *Phonapate frontalis uncinata* Karsch, *Sinoxylon sudanicum* Lesne, *Bostrychoplites reichei* Mars., Dinoderus bifoveolatus woll. and *Bostrychoplites zickeli* Mars. (Nour, 1963; Alfieri, 1976; Okil, 1982; El-Sebay, 1984. Batt, 1989.

Larvae of *E.trispinosus* live and feed inside the midrib tissues and cause them to be hollowed, spoiled and finally smashed (Abd-Alla and Tadros a & b, under publication) . Accordingly, these midribs could not be manufactured or used in wooden industry.

The aim of the present investigation is to study the relative susceptibility of some date palm varieties to midrib infestation by *E.trispinosus* .

MATERIALS AND METHODS

During winter months of 1992 (January and February), pruned-infested and sound-midribs of seven date palm leaf varieties were collected from the New Valley and Delta regions. Midribs were transferred to the laboratory at Plant Protection Research Institute, Dokki, Giza Governorate. The seven varieties were : Males, Zaghloul, Samani , Hainani , Manthour , Tamr and Seeidi (Seewi).

A bundle containing one sound midrib of each of the mentioned varieties (20 cm long and about 2 cm thick) were held together and confined with 50 newly emerged beetles in a glass jar (25 cm high and 18 cm diameter). Each jar was lined on the floor with a sheet of paper and covered on top with cloth muslin fixed in place with rubber band. Five replicates were used in the facultative feeding trial in early May, 1992.

The same technique was used in an obligate feeding trial in which 5 sound midribs of one from each variety were used in each jar.

In both trials, midribs were inspected one month after treatment and beetles that succeeded to enter each midrib variety were counted. The bundles were kept in place until the insects completed their development and the exit holes were recorded.

RESULTS AND DISCUSSION

The relative susceptibility of midribs of seven date palm varieties to *E.trispinosus* infestation is shown in Table 1 in facultative feeding trial and in Table 2 in obligate feeding trial.

The relative susceptibility in facultative feeding trial.

Table 1 showed that the mumbers of *E.trispinosus* beetles which succeeded to enter the midrils were 7.8, 6.4, 6.0, 5.2, 4.6, 2.4 and 0.4 per each midrib for the

varieties Males, Manthour, Zaghloul, Samani, Haiani, Tamr, and Seeidi (Seewi), respectively. The initial relative susceptibilities were 23.8, 19.5, 18.3, 15.9, 14.0, 7.3 and 1.2%, respectively.

Individuals which succeed to complete their development indicate the true susceptibility of the varieties. Accordingly, the numbers of the emerged beetles from each variety was counted, these were : 189.8 (153-203) , 152.4 (99-187), 141.2 (92-164), 107.4 (45-129), 94.6 (32-110), 28.2 (7-36) and 3.8 (0-5) per each of the respective varieties. Consequently, the real relative susceptibility had resulted in 26.3 , 21.7, 20.1 , 15.3 and 13.5% for males, Manthour, Zaghloul, Samani and Haiani varieties, respectively without significant differences between each other. Those varieties were signifcantly different from Tamr and Seeidi (Seewi) varieties which showed 2.6 and 0.5% relative susceptibility, respectively.

The mean number of emerged beetles per each entered beetle was 24.3, 23.8, 23.5, 20.7, 20.6, 11.8 and 9.5 beetles for the seven varieties, respectively.

The Relative Susceptibility in Obligate Feeding Trial

Data in Table 2 showed that with obligated feeding, Males was also the highest susceptible host to *E.trispinosus* where 10.2 beetles succeeded to attack the midribs. Next to Males were Manthour, Zaghloul, Samani, Hainani, Tamr and Seeidi (Seewi) varieties recording 8.4, 8.0, 7.2, 5.6, 3.8 and 1.6 beetles attacking midribs, respectively. The initial relative susceptibilities were 22.8, 18.8, 17.9, 16.1, 12.5, 8.5 and 3.6% for the seven varities, respectively.

The real infestation as represented by the number of beetles which succeeded to complete their development in the midribs-was 197.2 (166-210), 181.6 (152-202), 174.8 (127-190), 142.8 (101-162), 98.2 (59-122), 41.6 (19-55) and 15.2 (8-23) beetles for the seven varieties in respect . The relative susceptibilities 23.2 , 21.3, 20.5, 16.8 and 11.5% for were Males, Manthour, Zaghloul, Samani and Haiani varieties without significant differences between each other. Haiani, Tamr and Seeidi (Seewi) varieties were insignificantly different from each other (11.5, 4.9 and 1.8%, respectively). The last two varieties were significantly different from the first four varieties.

The mean number of emerged beetles per each entered beetle was 19.3, 21.6,

Table 1. Number of beetles succeeded to enter, to emerge and relative susceptibility (R.S. %) of date palm leaves to *E.trispinosus* infestation in facultative feeding trial.

No	Varieties	Entered beetles		Emerged beetles		Emerged beetles/ entered beetle
		Number	R.S. (%)	Number	R.S. (%)	
1	Males	7.8 ± 0.9 (5-10)	23.8	189.8 ± 1.2 (153-203)	26.3 a	24.3
2	Manthour	6.4 ± 0.7 (5-8)	19.5	152.4 ± 1.1 (99-8187)	21.7 a	23.8
3	Zaghloul	6.0 ± 0.5 (5-7)	18.3	141.2 ± 1.1 (92-164)	20.1 a	23.5
4	Samani	5.2 ± 0.6 (4-7)	15.9	107.4 ± 1.0 (45-129)	15.3 a	20.7
5	Haiani	4.6 ± 0.5 (3-6)	14.0	94.6 ± 1.0 (32-110)	13.5 a	20.6
6	Tamr	2.4 ± 0.4 (1-3)	7.3	28.2 ± 0.7 (7-36)	2.6 b	11.8
7	Seeidi (Seewi)	0.4 ± 0.1 (0-1)	1.2	3.8 ± 0.1 (0-5)	0.5 b	9.5

Figures of the same letter are not sigificantly different.

Table 2. Number of beetles succeeded to enter, to emerge and relative susceptibility (R.S. %) of date palm leaves to *E.trispinosus* infestation in obligate feeding trial.

No	Varieties	Entered beetles		Emerged beetles		Emerged beetles/ entered beetle
		Number	R.S. (%)	Number	R.S. (%)	
1	Males	10.2 ± 0.9 (8-13)	22.8	197.2 ± 1.3 (166-210)	23.2 a	19.3
2	Manthour	8.4 ± 0.6 (5-11)	18.8	181.6 ± 1.2 (154-202)	21.3 a	21.6
3	Zaghloul	8.0 ± 0.5 (5-10)	17.9	174.8 ± 1.1 (127-190)	20.5 a	21.9
4	Samani	7.2 ± 0.4 (4-9)	16.1	142.8±1.0 (101-162)	16.8 a	19.8
5	Haiani	5.6 ± 0.3 (3-6)	12.5	98.2 ± 0.8 (59-122)	11.5 ab	17.5
6	Tamr	3.8 ± 0.2 (2-6)	8.5	41.6 ± 0.5 (19-55)	4.9 b	10.9
7	Seeidi (Seewi)	1.6 ± 0.1 (1-3)	3.6	15.2 ± 0.1 (8-23)	1.8 b	9.4

Figures of the same letter are not sigificantly different.

19.8, 17.5, 10.9 and 9.5 beetles for the seven varieties, respectively.

It seems therfore that Seeidi (Seewi) followed by Tamr varieties are the most suitable in manufacturing date palm leaves due to their low infestation by *E.trispinosus*.

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درجة الاصابة النسبية بالخنفس الساحق للخشب اينياديسمس ترايسبينوزس (غمدية الاجنحة: بوستريكيدى) على أوراق بعض أصناف نخيل البلح

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معهد بحوث وقاية النباتات – مركز البحوث الزراعية – الدقى

أصبح الخنفس الساحق للخشب اينياديسمس ترايسبينوزس (من رتبة غمدية الأجنحة وعائلة بوستريكيدى) من الآفات شديدة الخطورة على أوراق النخيل فى مصر. درست درجة الاصابة النسبية بهذه الآفة على العرق الوسطى لسبعة أصناف من أوراق النخيل خلال عام ١٩٩٢. ودلت النتائج على أن الأصناف السبعة الآتية : الذكور ، والمنثور ، و الزغلول، والسمانى ، والحيانى، و التمر ، والصعيدى (أو السيوى) يمكن ترتيبها تنازليا من حيث درجة اصابتها النسبية بالآفة كالاتى : ٢٦,٣ ، ٢١,٧ ، ٢٠,١ ، ١٥,٣ ، ١٣,٥ ، ٢,٦، ٠,٥ ٪ فى حالة تجارب التغذية الاختيارية ، ٢٣,٢ ، ٢١,٣ ، ٢٠,٥ ، ١٦,٨، ١١,٥ ، ٤,٩ ، ١,٨٪ فى حالة تجارب التغذية الاجبارية ، على التوالى . وعلى الرغم من أن الصنف الصعيدى (السيوى) أظهر درجة بسيطة من الاصابة النسبية بالآفة فى تجارب العدوى الاختيارية ، إلا أن هذه الدرجة ارتفعت قليلا فى تجارب العدوى الاجبارية . وعلى ذلك يمكن اعتبار الصنف الصعيدى (السيوى) من اصناف نخيل البلح الهامة فى تصنيع العرق الوسطى.