

BIOTYPES DISTRIBUTION MAPS OF *BEMISIA TABACI* (COMPLEX) (HOMOPTERA: ALEYRODIDAE) IN EGYPT

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Abstract

The cotton and tomato whitefly, *Bemisia tabaci* (complex) (Gennadius) (Homoptera: Aleyrodidae) is a serious pest in many cropping systems world-wide and occurs in different biotypes. The present work deals with the distribution of the biotypes of *B. tabaci* in Egypt. Samples were collected from different locations in Egypt. Results indicated that *B. tabaci* Biotypes (B) and (Q) are recorded in 56 and 33 localities of 27 and 14 governorates in Egypt, respectively. Maps of the distribution of aforementioned biotypes were provided.

INTRODUCTION

The cotton and tomato whitefly, *Bemisia tabaci* (complex) (Gennadius) (Homoptera: Aleyrodidae) is a serious pest in many cropping systems world-wide and occurs in different biotypes. It has developed a high degree of resistance against several chemical classes of insecticides. Biotype (B) recorded in Egypt for the first time by Abd-Rabou *et al.* (2001).

The present work deals with the distribution of *Bemisia tabaci* (complex) (Biotypes B&Q) in Egypt.

MATERIALS AND METHODS

A survey of *Bemisia tabaci* (complex) was conducted. The samples of the whitefly, *B. tabaci* (complex) collected from several field in 2000-2006. The samples were determined by polyacrylamide gel electrophoresis (PAGE) for general esterases and by RAPD-PCR using primers of arbitrary sequence to detect the biotypes (Byrne and Devonshire, 1991). Also the biological characteristics were conducted to identify the biotypes for differences between the two biotypes in different parts in Egypt. For example: the female: male sex ratio of F1 individuals of biotype Q was higher in single than in mixed cultures. However, the sex ratio of F1 individuals of biotype B was the same in single and mixed cultures, suggesting reproductive interference. Also the shortest developmental times as well as the lowest developmental thresholds and thermal constant were mostly obtained with the Q biotype (Brwon, 1994).

RESULTS AND DISCUSSION

1. The distribution of *Bemisia tabaci* Biotype (B) in Egypt

As shown in Table (1) and Map (1) *B. tabaci* Biotype (B) is recorded in 56 localities of 27 governorates in Egypt.

2. The distribution of *Bemisia tabaci* Biotype (Q) in Egypt

As shown in Table (2) and Map (2) *Bemisia tabaci* Biotype (B) is recorded in 33 localities of 14 governorates in Egypt.

Doss (1968) recorded *Bemisia tabaci* (complex) in Alexandria, Asyut, Aswan, Cairo, Giza, Qalyubiya and Ismailia; Shaheen (1983) in Sharqiya; Nada *et al.* (1991) in Alexandria, Asyut, Aswan, Behira, Beni-Suef, Cairo, Daqhilya, Eastern desert, El-Salloum, Gharbiya, Giza, Menofia, Qena, Sharqiya and Sohag; Abd-Rabou (1997) in Aswan, Beni-Suef, Cairo, Eastern desert, El-Dakhala, El-Minia, Matruh, Qalyubiya, Qena and Hussin (1997) in Behira, Daqhilya, Giza.

Table 1. The distribution of *Bemisia tabaci* Biotype (B) in Egypt.

Distribution		
Governorate	Locations	Date of Collection
Alexandria	El-Agami	Aug., 2005
Asyut	El-Badari	Sep., 2006
	Manfalot	Nov., 2004
Aswan	Aswan	Jan., 2002
Behira	Abu Humms	Dec., 2001
	Kafr El-Dawar	Aug., 2003
	Kom Hamada	Aug., 2002
	Rashid	Dec., 2004
	Ityai El-Barud	Jan., 2006
Beni-Suif	Biba	July, 2004
	El-Fashn	July, 2006
	El-Wasta	Oct., 2004
	Naser	May, 2002
Cairo	Maadi	June, 2003
	Heliopolis	Dec., 2001
	Helwan	May, 2002
	Naser City	Dec., 2005
	Zamalk	Nov., 2001
Daqhilya	Aga	Sep., 2003
	Dikrnis	Nov., 2006
Demyata	Demyata	Dec., 2005
El-Dakhala	El-Dakhala	Dec., 2003
El-Kharga	El-Kharga	Jan., 2001
El-Minia	Mallawi	Aug., 2000
	Beni-Mazar	Nov., 2003
	Samalut	May, 2000

Table 1. Cont.

Distribution		Date of Collection
Governorate	Locations	
Faiyum	Itsa	Oct., 2001
	Ibshwai	Nov., 2002
	Sinnuris	May, 2003
Gharbiya	Samanoud	Aug., 2004
Giza	El-Aiyat	Nov., 2002
	El-Manyal	May, 2005
	El-Saff	June, 2005
Ismailia	Ismailia	Oct., 2003
Kafer El-Shikh	Biyala	Dec., 2003
	Kafer El-Shikh	June, 2003
Matruh	El-Saloum	Aug., 2003
	Matruh	Aug., 2003
Menofia	Minuf	Oct., 2001
	Shibin El-Kom	Oct., 2000
Northern Sinai	El-Arish	Sep., 2001
Port –Said	Port –Said	July, 2002
Qalyubiya	Benha	Aug., 2001
	El-Qanatir El-Khairiya	Sep., 2001
	Kafr Shokr	Jan., 2003
	Qalyub	Nov., 2002
Qena	Tukh	Nov., 2002
	Isna	Aug., 2001
	Luxor	Oct., 2003
Red Sea	Ghardgha	Aug., 2003
Sharqiya	Abu Hamad	May, 2003
	Bilbeis	July, 2004

Table 1. Cont.

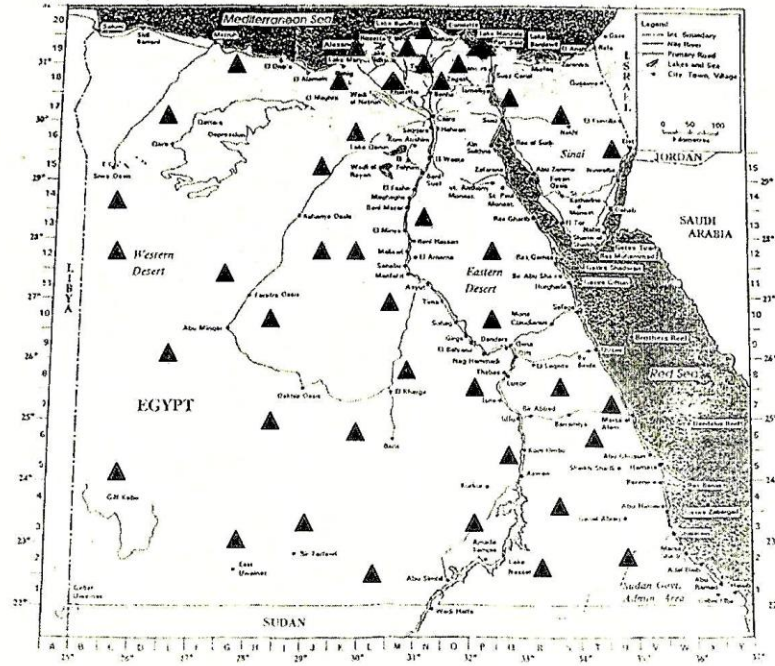
Distribution		Date of Collection
Governorate	Locations	
	Minya El-Qamh	June, 2004
Sohag	Girga	June, 2002
Southern Sinai	El-Tor	June, 2003
Sueze	Sueze	Dec., 2001

Table 2. The distribution of *Bemisia tabaci* Biotype (Q) in Egypt.

Distribution		Date of Collection
Governorate	Locations	
Alexandria	El-Agami	Aug., 2006
Behira	Abu Humms	Dec., 2006
	Kafr El-Dawar	Aug., 2005
	Kom Hamada	Aug., 2006
	Rashid	Dec., 2006
Cairo	Ityai El-Barud	Jan., 2006
	Maadi	June, 2006
	Heliopolis	Dec., 2005
	Helwan	May, 2006
	Naser City	Dec., 2005
	Zamalk	Nov., 2006
	Daqhilya	Aga
Demyata	Dikimis	Nov., 2006
	Demyata	Dec., 2005
Gharbiya	Samanoud	Aug., 2005
Giza	El-Aiyat	Nov., 2005
	El-Manyal	May, 2006
	El-Saff	June, 2005
Ismailia	Ismailia	Oct., 2006
Kafer El-Shikh	Biyala	Dec., 2006
	Kafer El-Shikh	June, 2006
Menofia	Minuf	Oct., 2006
	Shibin El-Kom	Oct., 2006
Port -Said	Port -Said	July, 2006
Qalyubiya	Benha	Aug., 2006
	El-Qanatir El-Khairiya	Sep., 2005

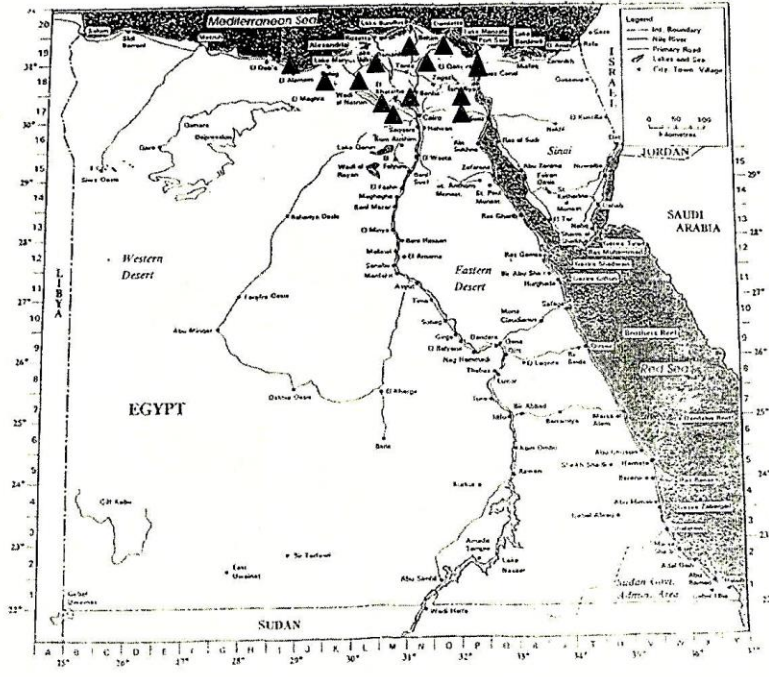
Table 2. Cont.

Distribution		Date of Collection
Governorate	Locations	
	Kafr Shokr	Jan., 2006
	Qalyub	Nov., 2006
	Tukh	Nov., 2006
Sharqiya	Abu Hamad	May, 2006
	Bilbeis	July, 2005
	Minya El-Qamh	June, 2005
Sueze	Sueze	Dec., 2006



Map 1 . Distribution of the whitefly, *Bemisia tabaci* Biotype "B" in different localities in Egypt.

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Map 2. Distribution of the whitefly, *Bemisia tabaci* Biotype "Q" in Egypt.

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خريطة التوزيع الجغرافي لسلاسل ذبابة القطن والطماطم البيضاء في مصر

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ذبابة القطن والطماطم البيضاء من الآفات الضارة للعديد من المحاصيل المختلفة في أماكن كثيرة من العالم والتي تحدث بها العديد من السلالات البيولوجية المختلفة. يتضمن هذا العمل تجميع عينات من الذبابة البيضاء في أماكن متباعدة في مصر. وقد أظهرت النتائج أن السلالة البيولوجية (B) and (Q) سجلت في ٣ و ٥٦ مكان في ١٤ و ٢٧ محافظة على الترتيب. وقد تضمن العمل أيضاً خرائط للتوزيع الجغرافي لسلاسل ذبابة القطن والطماطم البيضاء في مصر.