

Variations in certain biological aspects of the cotton aphid, *Aphis gossypii* Glover (Homoptera: Aphididae) in relation to color of its forms

Y. A. Darwish*, M. M. A. Rizk, S. A. Eraky and Amal A. Atta

Plant Protection Department, Faculty of Agriculture, Assiut University, 71526 Assiut, Egypt

Abstract

The stock populations of two groups of *Aphis gossypii* Glover (Homoptera: Aphididae) were collected from cucurbitaceous plant leaves cultivated in Assiut and the New Valley Governorates, Egypt. Both aphid groups were brought into the laboratory and used as base line of pirimicarb resistance. Pirimicarb LC₅₀ base line was determined by the dipping technique in successive concentrations of the trade form of pirimicarb mixed in water. The LC₂₅ was determined monthly throughout two years and used in the selection. This procedure resulted four aphid forms at each location (i.e., base line, mixed, light color, and dark color). It was found that the total nymphal duration of dark forms collected from both locations did not vary significantly from the base line forms. Data of the reproductive biology of aphids from both locations showed that the fecundity period, longevity and productivity of the dark morphs were significantly higher than those of the base line ones.

Key words: cotton aphid colored forms, biological aspects, pirimicarb, *Aphis gossypii*

Introduction

The cotton aphid, *Aphis gossypii* Glover (Homoptera: Aphididae) is a cosmopolitan polyphagous species widely distributed in tropical, subtropical and temperate regions (Kresting et al., 1999). This aphid species is a vector of about 76 viral diseases across a very large range of plants (Raworth et al., 1991). Problems associated with aphid in Egyptian cotton include transmission of certain cotton diseases, yield reductions due to the large early season infestations and the effect of honeydew on fiber quality at the late season infestations (Georghiou, 1981; Rizk et al., 2014). Generally, chemical control has been the major tool for the control

of aphids (Parrella et al., 1999). Even though resistance of *A. gossypii* to some insecticides has been documented (Delorme et al., 1997; Herron et al., 2001; Wang et al., 2002). The use of selective insecticides is needed for successful integrated pest management (IPM) programs (Talebi, 2007). Pirimicarb is a selective carbamate insecticide that inhibits acetylcholinesterase (AChE) activity in the insect nervous system, it is used against the targeted aphids in particular (Hassall, 1990; Talebi, 2007). Resistance to insecticides was detected in approximately 20 aphid species including *A. gossypii* (Georghiou, 1981; Jam et al., 2014).

* Corresponding author: yousefdarwish11@yahoo.com

