

Molecular Characterization and Geographical Distribution of Whitefly *Bemisia tabaci* (Hemiptera: Aleyrodidae) in Jordan

Hanna Mdanat¹, Nida Salem² , Eman Al-Anaswah³, Sadeer Amasha⁴, Nasser Romeiah⁵, Nizar Haddad⁶ 

¹ National agricultural research center (NARC) Jordan, Email: Hannamadanat@yahoo.com

² Plant protection department, School of Agriculture, The University of Jordan, Amman 11942, Jordan. Nmsalem72@gmail.com

³ National agricultural research center (NARC) Jordan. anaswaheman@yahoo.com

⁴ Research assistant, National agricultural research center (NARC) Jordan, sadeer_amasha@yahoo.com

⁵ Ministry of Agriculture, Jordan. ronasser@yahoo.com

⁶ National agricultural research center (NARC) Jordan, dmizarh@yahoo.com

Received on 30/3/2021 and Accepted for Publication on 21/1/2022.

ABSTRACT

The whitefly *Bemisia tabaci* (Gennadius) is a large complex of cryptic species and is considered an invasive pest transmitting many plant viruses. It is a highly polyphagous insect that causes damage and economic losses to many plant species including vegetables, cotton, ornamentals, and weeds either in the open field or the greenhouses. A two-year survey (2016 to 2018) was conducted to biotype *B. tabaci* for B (MEAN1) and Q (MED) biotypes putative species. 18 host plants were screened from 14 different locations with a total of 101 samples that were collected and tested. Microsatellite markers and mitochondrial cytochrome oxidase I (mt COI) gene sequencing were used. The results showed that biotype B is dominant and prevailed in all surveyed locations.

Keywords: *Bemisia tabaci*, microsatellite markers, mitochondrial cytochrome oxidase I, PCR sequencing, biotyping, distribution.

INTRODUCTION

Bemisia tabaci (Gennadius) (Hemiptera: Aleyrodidae) is an invasive pest species of the first 100 invasive cosmopolitan species (Global invasive species database, <http://www.issg.org/database>). It has a wide host range; where more than 900 host plants are infested (Simmons et al., 2008). This pest has widespread and

dispersal nearly all over the world. As a virus vector of more than 111 viruses (Jones, 2003) it causes losses to agriculture production (Mckenzie et al., 2009).

Whitefly adults appeared to differ only slightly in their morphological characteristics which were of little value in distinguishing species (Raymond, 1990). Whitefly *B. tabaci* forms a species complex (De Barro et al., 2011) with at least thirty-six biotypes or host races (Mckenzie et

© 2022 DSR Publishers/The University of Jordan. All Rights Reserved. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY-NC) license (<https://creativecommons.org/licenses/by-nc/4.0/>)