



**HAL**  
open science

## **Biological control against the tomato leafminer, *Tuta absoluta*, by studying egg parasitoids to improve IPM strategies**

Hong Do Thi Khanh, Marion Tiradon, Anais Chailleux, Nicolas Desneux, ETTY Colombel, Gilles Ridray, Frédéric Rey, Anais Vernillet, Julien Seguret, Pascal Maignet, et al.

### ► To cite this version:

Hong Do Thi Khanh, Marion Tiradon, Anais Chailleux, Nicolas Desneux, ETTY Colombel, et al.. Biological control against the tomato leafminer, *Tuta absoluta*, by studying egg parasitoids to improve IPM strategies. 24. International Congress of Entomology. ICE 2012, Aug 2012, Daegu, South Korea. 1 p. hal-02806914

**HAL Id: hal-02806914**

**<https://hal.inrae.fr/hal-02806914v1>**

Submitted on 6 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

## XXIV International Congress of Entomology

19 – 25 August 2012, Daegu, Korea

### Biological control against the Tomato Leafminer *Tuta absoluta*, using egg parasitoids in IPM strategies

Hong DO THI KHANH<sup>\* (1)</sup>, Marion TIRADON<sup>(1)</sup>, Anaïs CHAILLEUX<sup>(1)</sup>, Nicolas DESNEUX<sup>(1)</sup>, ETTY COLOMBEL<sup>(1)</sup>, Gilles RIDRAY<sup>(2)</sup>, Frédéric REY<sup>(3)</sup>, Anaïs VERNILLET<sup>(4)</sup>, Julien SEGURET<sup>(4)</sup>, Pascal MAIGNET<sup>(9)</sup>, Yannick TROTTIN-CAUDAL<sup>(5)</sup>, Catherine CHABRIÈRE<sup>(6)</sup>, Jérôme LAMBION<sup>(7)</sup>, Anne TERRENTROY<sup>(8)</sup>, Elisabeth TABONE<sup>\* (1)</sup>

1. INRA, Institut Sophia Agrobiotech, 400 Route des CHAPPES, 06903 Sophia Antipolis, France  
[Elisabeth.Tabone@sophia.inra.fr](mailto:Elisabeth.Tabone@sophia.inra.fr), [hong.do@sophia.inra.fr](mailto:hong.do@sophia.inra.fr), [Nicolas.Desneux@sophia.inra.fr](mailto:Nicolas.Desneux@sophia.inra.fr)  
Tel. + 33 492 386 426 / 503, fax. + 33 492 386 401
2. INRA, Station expérimentale du Mas Blanc, 66200 Alénia, France; [ridray@supagro.inra.fr](mailto:ridray@supagro.inra.fr)
3. ITAB, 149 rue de Bercy, 75595 Paris Cedex 12, France; [frederic.rey@itab.asso.fr](mailto:frederic.rey@itab.asso.fr)
4. BIOTOP, 1306 route de Biot, 06560 Valbonne, France; [JSeguret@biotop.fr](mailto:JSeguret@biotop.fr)
5. CTIFL, Balandran, 30127 Bellegarde, France; [trottiny@ctifl.fr](mailto:trottiny@ctifl.fr)
6. APREL, Route de Mollégès, 13210 Saint-Rémy de Provence, France; [chabriere@aprel.fr](mailto:chabriere@aprel.fr)
7. GRAB, 255 chemin de la Castelette, BP 11283, 84 911 Avignon Cedex 9, France; [jerome.lambion@grab.fr](mailto:jerome.lambion@grab.fr)
8. Chambre d'Agriculture des Bouches-du-Rhône; [a.terrentroy@bouches-du-rhone.chambagri.fr](mailto:a.terrentroy@bouches-du-rhone.chambagri.fr)
9. Invivo AgroSolutions, 1306 route de Biot, 06560 Valbonne, France; [PMAIGNET@invivo-group.com](mailto:PMAIGNET@invivo-group.com)

#### Abstract

Since 2011, new egg parasitoids have been assessed to control the Tomato Leafminer *Tuta absoluta* in the frame of a research program improving IPM strategies (TutaPI program, funded by the French Ministry of Agriculture, 2011-2013). This new invasive pest in the Mediterranean Basin and Europe causes serious damage on tomato crops.

Greenhouse tests under IPM strategies combining inundative release of *Trichogramma achaeae* (species native from the Canary Islands, Spain and sold in all Europe) and *Macrolophus pygmaeus*, showed good results. The predator *M. pygmaeus* is also used against whitefly on tomato crops.

Other species of *Trichogramma* (19) from the whole world were considered. First, a screening of parasitoid efficacy was performed in laboratory conditions with sixty-four strains (long-term rearing in the collection of INRA Provence-Alpes Côte d'Azur, France). Second, thirty strains freshly collected (from tomato crops in southern France last summer by TutaPI partners such as BIOTOP, GRAB,...) were tested.

In the laboratory, some strains from both long-term rearing and field collects showed better efficacy than the control *Trichogramma achaeae*.

The efficacy of those parasitoids has been studied in mesocosm, then will be assessed in greenhouse to select the most efficient strains for biological control and IPM strategies.

All this work together with other actions developed in the TutaPI program, aims to define IPM strategies that are more efficient and at an affordable cost to producers.

**Key words:** *Trichogramma*, inundative release, biological control, tomato, invasive pest, greenhouse, *Tuta absoluta*



This project is also supported by : RMT D evAB, p le de comp titivit  PEIFL et GisPICl g