

First record of *Tuta absoluta* (Meyrick) (Lepidoptera: Gelechiidae) in Burundi

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This study to detect *Tuta absoluta* was carried out at four sites in western Burundi from March to July 2018. Delta traps containing Tutrack pheromone and sticky paper were installed in tomato fields at 40 cm from the ground. Sample collection was carried out twice a week. The results confirmed the presence of *T. absoluta* in Burundi. Effective pest control is required to avoid heavy losses on tomato production.

Introduction

Tuta absoluta (Meyrick, 1917), commonly known as the tomato leaf miner, is a small moth native to South America (Balzan & Moonen, 2012; Retta & Berhe, 2015), more specifically to Chile (Rey *et al.*, 2014). It is a major pest of tomato and other cultivated plants including potato, eggplant, chili and tobacco (Chidege *et al.*, 2016; Tumuhaise *et al.*, 2016). *Tuta absoluta* has already invaded South America, Europe, North America, the Middle East, Asia and some African countries (Desneux *et al.*, 2010; Brévault *et al.*, 2014).

In Africa *T. absoluta* is already present in Algeria, Botswana, Egypt, Ethiopia, Kenya, Libya, Mozambique, Niger, Nigeria, Senegal, Sudan, Tanzania, Tunisia, Uganda and Zambia (Retta & Berhe, 2015; Tumuhaise *et al.*, 2016). In Tanzania, which borders Burundi, *T. absoluta* was reported in 2014 and poses serious problems to tomato production (Chidege *et al.*, 2016).

The presence of *T. absoluta* and its progression across Tanzanian territory is a concern for Burundian farmers, since all of its host plants are cultivated in Burundi. This is the case for tomato which is grown throughout the country, and is one of the crops that provides significant income to farmers. In addition, the free movement of fruits across borders is increasing the risk of invasion of *T. absoluta*. Indeed, Rey *et al.* (2014) reported that *T. absoluta* invades new areas through the movement of infested plants and fruits from one region to another.

In order to verify whether or not the species was present in Burundi, surveillance was carried out for the first time in tomato farms in western Burundi. This article reports the first detection of *T. absoluta* in Burundi.

Materials and methods

This study was carried out in three tomato farms and one garden in western Burundi (Table 1, Fig. 1). Western

Burundi is considered as a tomato growing area. The site of Jabe (a garden with grass and flowers) was chosen to monitor the presence of this pest outside agricultural environments. The collection of samples was undertaken from March to July 2018 using Delta traps from Russell Integrated Pest Management. Traps were suspended at 40 cm from the ground in the tomato fields. Each trap contained Tutrack lure (from Kenya Biologics Ltd) deposited on a sticky paper. Tutrack lure contains pheromones which attract the male *T. absoluta* moth. Attracted adult individuals immediately became stuck to the sticky paper. Sample collection was carried out twice a week and the sticky paper was replaced at each visit. Each attractant had an 8-week life span.

Results

From March to July 2018, 2084 individuals of *Tuta absoluta* were collected from four sites in western Burundi (Table 2). This pest was found in the non-agricultural area as well as in the tomato growing ones. It could have invaded the country before 2018 but both the invasion routes and entry date remain unknown. Damage was observed on leaves and fruits in all sites.

Table 1. Coordinates of different sampling zones

Name of the site	Coordinates	Elevation (m above sea level)
Buterere (Bujumbura-Mairie)	S: 03°20'32.3" E: 029°20'52.1"	783
Jabe (Bujumbura-Mairie)	S: 03°21'57.4" E: 029°22'01.7"	812
Buhororo (Buhanza)	S: 03°4'51. " E: 029°24'18"	1101
Kagazi (Citiboke)	S: 02°50'16.1" E: 029°07'18.7"	979

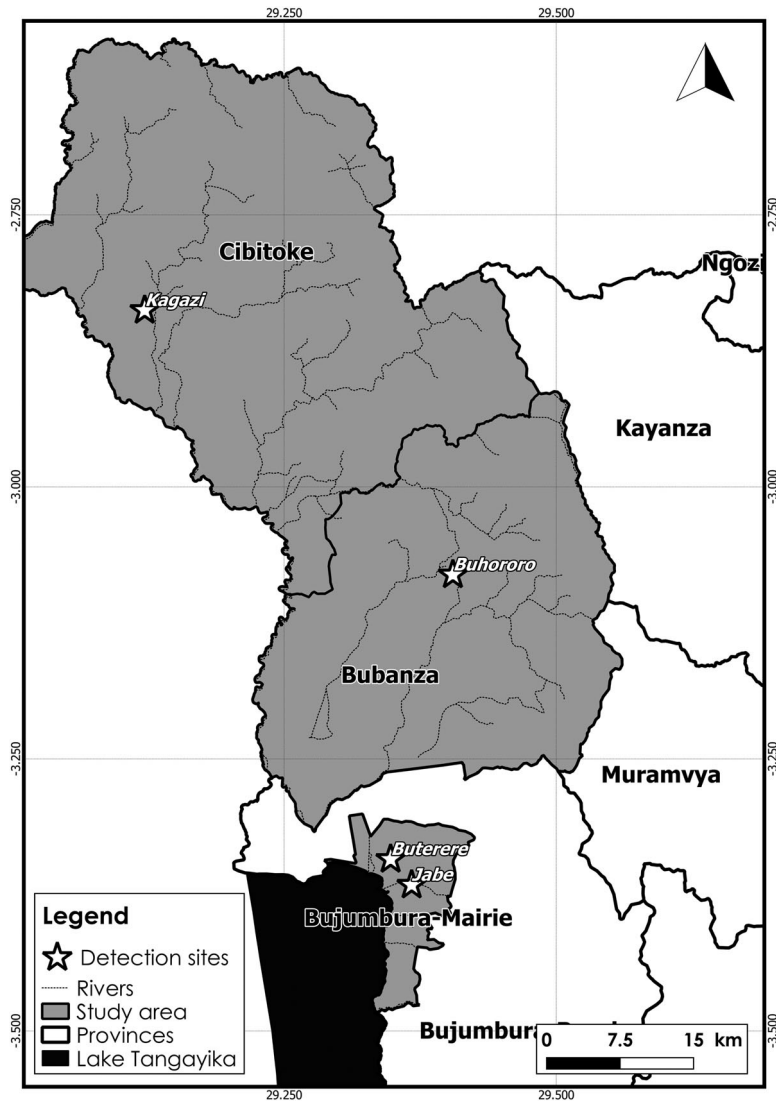


Fig. 1 Map of the sampling sites.

Table 2. Collected individuals

Sites	Duration	Number of captures
Buterere (Bujumbura-Mairie)	27 March to 29 April 2018	234
Jabe (Bujumbura-Mairie)	31 March to 11 May 2018	350
Buhororo (Buhanza)	28 March to 4 May 2018	330
Kagazi (Cibitoke)	6 June to 4 July 2018	1170
Total		2084

Identification of specimens

The individuals were identified using a Leica EZ4HD stereomicroscope with the identification keys produced by

Brambila *et al.* (2010a,b). Specimens were conserved at the Laboratory of Biodiversity Research Service.

Conclusion

This study showed that the tomato leaf miner (*T. absoluta*) is already present in Burundi. Thus, immediate actions are necessary to put into place an effective pest management programme.

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Premier signalement de *Tuta absoluta* (Meyrick) (Lepidoptera : Gelechiidae) au Burundi

Cette étude a été menée de mars à juillet 2018 sur quatre sites distincts de l'ouest du Burundi, en vue de la détection de *Tuta absoluta*. Des pièges Delta contenant la phéromone du dispositif Tutrack et du papier collant ont été installés dans des champs de tomates à 40 cm du sol. Les échantillons ont été prélevés deux fois par semaine. Les résultats ont confirmé la présence de *T. absoluta* au Burundi. Une lutte efficace contre cet organisme nuisible est nécessaire pour éviter de lourdes pertes de production de tomates.

Первое сообщение о томатной минирующей моли *Tuta absoluta* (Meyrick) (Lepidoptera : Gelechiidae) в Бурунди

Данное исследование по выявлению томатной минирующей моли (Мейрик) было проведено в четырех местах на западе Бурунди в период с марта по июль 2018 года. Ловушки типа Дельта, содержащие феромон Тутрек и клейкую бумагу, были размещены на плантациях томата в 40 см от земли. Отбор образцов проводился дважды в неделю. Результаты подтвердили присутствие томатной минирующей моли в Бурунди. Для предотвращения серьезных потерь в производстве томатов необходима эффективная борьба с этим вредным организмом.

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