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Short Communication

Note on *Dacus frontalis* Becker (Diptera: Tephritidae) presence as a pest of cucurbit fruits in Timimoun, Algeria

Hafsa Benras [1]*, Abdelouahad Ali Ahmed [2] , Ahlem Benghedier [1] & Omar Guezoul [1]

[1] Laboratoryof Saharan Bio-Resources: Preservation and Development, Faculty of Natural and Life Sciences, University of Kasdi Merbah, 30000 Ouargla, Algeria.
[2] Talmine,01034 Timimoun, Algeria.
* Correspondence: benras.hafsa@univ-ouargla.dz / benras.hafsa@gmail.com

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Abstract : In order to identify the pest responsible for cucurbit fruit damage in June 2021, five males and five females *Dacus frontalis* were captured in Talmine in Timimoun (Algeria). This is the first time this species has been identified as a pest of cucurbit fruits in Timimoun.

Key words : Tephritidae, *Dacus frontalis*, Timimoun, Algeria.

1. Introduction

Dacus frontalis Becker (Diptera: Tephritidae), Known as the pumpkin fly, and the Greater melon fly is an important pest of cucurbit fruits in many parts of Africa and the middle east, [1]. Because of their ability to destroy fruits' quality, and their height quarantine position throughout the globe, fruit flies from the family Tephritidae are prominent plant damaging insects, [2]. The pumpkin fly is considered as pest of several plant species. In general, approximately ten cucurbit fruits have been recorded to be attacked by this pest. In addition to wild host plants, *D. frontalis* flies also damage a variety of fruit crops such as, *Citrullus colocynthis* (colocynth), *Citrullus Lanatus* (watermelon), and *Cucumis melo* (melon), [2,3]. Native to the African continent, *D. frontalis* has been recently recorded in morocco, [4] and Tunisia, [1], although it was detected before in Algeria, Libya, and Egypt according to GBIF network, [5]. The species was also detected in the middle east in Iraq, Yemen, Jordan, and SaudiArabia, [6-7]. The economic damage to fruit crops caused by *Dacus frontalis* is remarkable; the estimated cost is up to 100% reduction in soft fruit production [1-8]. In recent years, *Dacus frontalis* knows an important expansion in North Africa [1]. Compared to other north African regions, a singular documented case of *Dacus frontalis* in Algeria was reported during 1997 from Ghardaia (north west of the Algerian Sahara) with a specimen deposited in natural history museum in London (Catalogue number: BMNH(E) 700427). The challenge to predict *Dacus frontalis* expand ranges in Algeria is raised due to its ambiguous natural geographic distribution. In June 2021, we detected *Dacus frontalis* in Talmine, a small town in the province of Timimoun, South western Algeria (29°21'41" N 0°27'11" w). The climate in this area is desertic (BWh in the Ko¨ppen-Geiger classification system), with an average rainfall of 30 mm, and 24.6 °C average temperature. The pumpkin fly presence in this region should be considered as a serious threat as agricultural activity is the main economic wheel in this region. The current note on the importance of this Tephritid fly in Timimoun is of significant concern, as this pest species may has spread to other regions.

2. Methods and results

Following the declaration of a farmer who had lost the majority of his melon fruit yield due to fruit flies, this investigation was initiated. On June 3rd, 2021, *Dacus frontalis* specimens were discovered in traps deposited in the field at the study location while doing field work to identify the pest responsible for cucurbit fruits damage. Samples were collected from a palm grove located in Talmine at 97 Km from Timimoun, North West of the Algerian Sahara. This region is one of the Grand Erg Occidental's oases, and it is recognized for its agricultural vocation, in which man attempts to conquer and change land in order to conduct subsistence farming [9]. The study site covers an area of 3 hectares, cultivated with more than 200 palm trees of eight different cultivars. Cereals and fodder plants are grown in rows under palm trees with some fruit trees, in addition to spaces dedicated for seasonal vegetables.

Near cucurbit plantations, pitfall traps and yellow pan traps were set. By the mean of both methods we were able to collect Dipteran and Hymenopteran individuals. Ten *Dacus frontalis* individuals were detected in yellow pan traps and were preserved in a petri dish for morphological analysis. Morphological structures of the flies observed using a binocular stereomicroscope (OPTIKA ST-45-2L) confirmed the species is *Dacus frontalis*. The identification to species level was carried out by Dr Marc De Meyer (Department of Biology, Royal Museum for Central Africa, Tervuren, Belgium) using photos of the specimen. A detailed description of Morphological characters of *D. frontalis* is presented in [1].

Symptoms of this pest attack began to occur in the second fortnight of May 2021, with stings on fruits and rotten fruits being the most common (figure 1). According to the farmer's description, *D. frontalis* attacked young fruits of *Cucumis melo* L. of all varieties. In addition, in recent years, the same symptoms were noticed on *Cucurbita pepo* with a high damage rate in the same region.

In the study site, damage rate due to *Dacus frontalis* females was estimated at approximately 75% of rotten fruits. The percentage of damage was calculated based on the proportions of infested fruits to non-infested ones. The present study is the first report of the presence of this fruit fly as a pest of cucurbit fruits in Timimoun region.

Over all, as this problem has been repeating for several years so far, early sowing dates is the largest adopted management strategy by farmers in this region in order to decrease the risk of damage due to these Tephritidae flies.

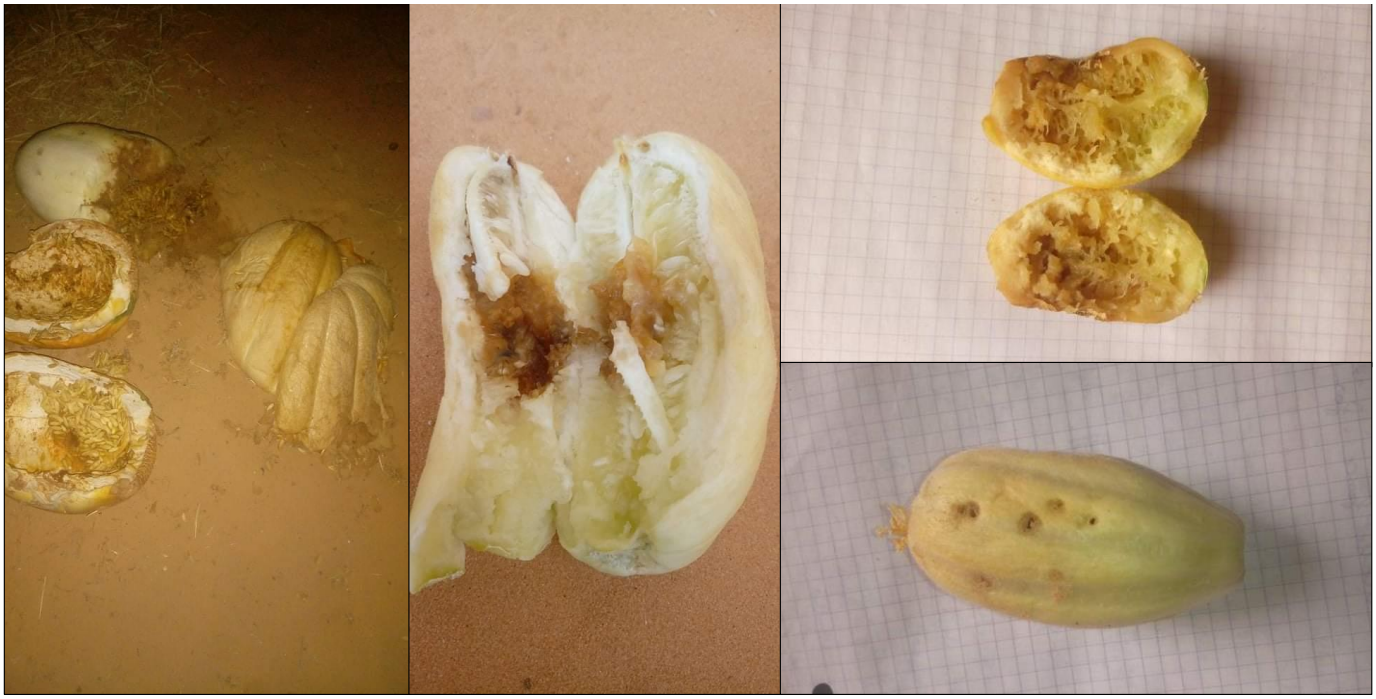

Figure 1. Melon fruits rotten due to the pumpkin fly attacks in the study site

Due to the obvious potential for economic impact, it is critical to monitor this pest's distribution and population dynamics in western Algeria, the Algerian Sahara, and throughout the country in order to design adequate pest management plans and prevent the spreading of this pest throughout non-infested regions.

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