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Range expansion of invasive stone leek leafminer *Liriomyza chinensis* (Kato, 1949) (Diptera: Agromyzidae) in Eastern Europe

Расширение ареала инвазивного лукового листового минёра *Liriomyza chinensis* (Kato, 1949) (Diptera: Agromyzidae) в Восточной Европе

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Ключевые слова: *Liriomyza chinensis*, инвазивный вид, первое указание, Донецк.

Abstract. *Liriomyza chinensis* (Kato, 1949) is firstly recorded in Donbass region as a new invasive species and dangerous pest of onions that is actively expanding its area in Eastern Europe. The species was registered in the territory of Donetsk in May, 2016.

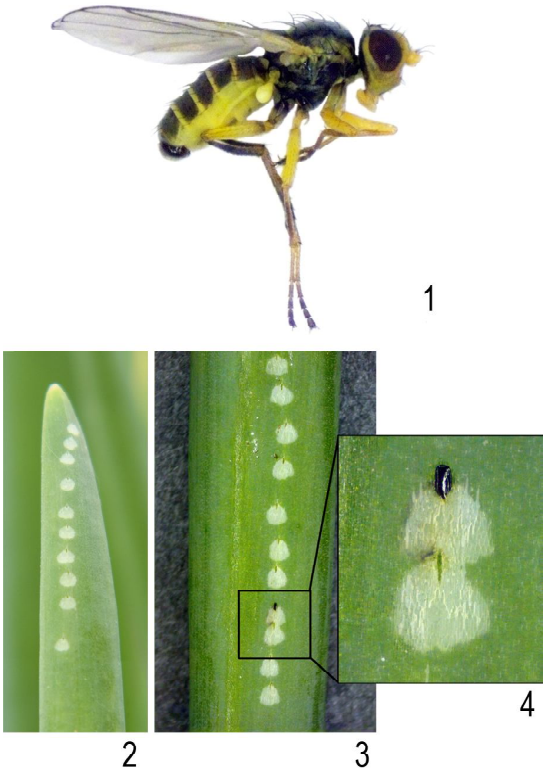
Резюме. Впервые для Донбасса приводится *Liriomyza chinensis* (Kato, 1949), инвазивный вид и опасный вредитель луков, активно расширяющий ареал в Восточной Европе. Вид выявлен в мае 2016 г. на территории Донецка.

Stone leek leafminer (*Liriomyza chinensis* (Kato, 1949) is widespread in South-East Asia and the Pacific (China, Indonesia, Japan, Korea, Thailand, Malaysia, Singapore, Taiwan, Vietnam), where it refers to the dangerous pests of onions (*Allium* spp.) [Tran, Takagi, 2005; Tran et al., 2007]. In Europe this species was first recorded in France in the 80-s of 20th century [Martinez, 1982], and is now also indicated for Germany [Dempewolf, 2016]. In the Russian Federation *L. chinensis* was first registered in 2000–2001 in the Primorsky Krai [Vasiljeva, 2003], but, on the author's opinion, it appeared in Primorye in the mid of the 90-s of 20th century and was incorrectly identified as *L. cepae* Hering [Vasiljeva, 2003]. Subsequently *L. chinensis* was recorded in the North Caucasus, and, in the early 2000-s, in the Rostovskaya Oblast' [Artokhin, Gavrilova, 2008; Artokhin, 2009].

In territory of the Donetsk this species was first identified in 2016 on *Allium* × *proliferum* (Moench) Schrader ex Willdenow, 1809 and *A. fistulosum* Linnaeus, 1753. Targeted surveys in the plantings of onion in Novoazovskiy and Amvrosievskiy Districts have not yielded positive results.

Liriomyza chinensis (Kato, 1949)
Fig. 1.

Material. 1♂, Donetsk (48°0'41" N, 37°52'52" E) *Allium proliferum*, 13.05.2016, T.V. Nikulina; 1♂, Donetsk (48°0'41" N, 37°52'52" E) *A. fistulosum*, 30.05.2016, V.V. Martynov.



Figs 1–4. *Liriomyza chinensis*: 1 — imago, male; 2–3 — chains of punctures on the onions leaf; 4 — the cut on the epidermis of onions leaf, caused to ovipositor.

Рис. 1–4. *Liriomyza chinensis*: 1 — имаго, самец; 2–3 — цепочки проколов на листе лука; 4 — нанесённый яйцекладом разрез эпидермиса листа лука.

Host plants. Stone leek leafminer damages different species of genus *Allium* (*A. cepa* L., *A. proliferum* Schrad., *A. ascolonicum* L., *A. ramosum* (= *A. odorum* L.), *A. fistulosum* L., *A. porrum*, *A. sativum*) [Martinez, 1982; Vasiljeva, 2003; Shiao, 2004]. In the European and Asian parts of Russia *L. chinensis* proved to be a dangerous pest of different species of *Allium*, which damages the plants throughout the growing season. The greatest damage was causes by *L. chinensis* on *A. cepa*, that is grown as annual plants [Vasiljeva, 2003; Artokhin, 2009].

Biology. The females lay eggs inside the leaf tissue. Moving along the leaf females puncture epidermis by the ovipositor, leaving a clearly visible chain of punctures (Fig. 2–4). For oviposition females use only 5–15 % of punctures; the rest of punctures are used for food of males and females [Vasiljeva, 2003]. Females live up to 2 weeks (an average of 9 days), and lay 17 to 271 eggs (an average of 108) [Tran, Takagi, 2005]. During its lifetime female makes up to 2592 punctures in the epithelium of leaf that can reduce photosynthesis and may kill young plants [Tran, Takagi, 2005]. The larvae develop and feed in parenchyma tissues of leaves. During its lifetime larva is capable of changing its position inside the leaf, forming from 2 to 4 mines. On completion of feeding the larva goes for pupation in soil. There are three or four generations per year in Primorsky Krai [Vasiljeva, 2003], three generations — in Rostovskaya Oblast' [Artokhin, 2009]. In winter leafminer hibernates in the pupation stage [Maslyakov, Izhevsky, 2011].

Distribution of leafminer over long distances takes place in pupation stage, which is usually located between the scales of the bulbs, whereby the pest is easily imported into new regions [Tran et al., 2007].

Remarks. There are all reasons to presume that the initial stage of the *L. chinensis* invasion currently takes place on the territory of Donbass, and the pest is presented by few local populations. The ability of the pest to cause significant damage to the onion plantings requires a focused search and monitoring of the state of its populations, as well as a research of biology of leafminer in the region.

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