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Short Communication

Note on *Melyris oblonga* (Fabricius, 1775) (Coleoptera: Melyridae) from SW Iran

M. Esfandiari [1], F. Karamollachaab [1*]

***Corresponding Author:** Department of Plant Protection, Faculty of Agriculture, Shahid Chamran University of Ahvaz, Ahvaz, Iran (fkby0428@gmail.com)

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Abstract

This study documents new biological and distributional information on *Melyris oblonga* (Fabricius, 1775) from southwestern Iran, representing the first confirmed record of the species from this region. Larvae were discovered inhabiting a basidiomycete fungus growing on *Ziziphus spina-christi*. Rearing attempts indicated that the larvae persisted for extended periods when maintained on the fungus, with one individual successfully developing into an adult under controlled laboratory conditions. The resulting specimen was identified as *M. oblonga* and deposited in the insect collection of Shahid Chamran University of Ahvaz. According to observations, the species may complete a single generation annually. Morphological traits of both the larval and adult stages are briefly described, with the known geographic range updated to include southern Iran. The findings also complement scattered reports on the species' association with indoor habitats, stored products, and fungal substrates, offering new insight into the ecology as well as developmental biology of a poorly studied melyrid.

Keywords: basidiomycete fungus, Species distribution, fauna, Melyrini

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گزارش کوتاه انگلیسی

یادداشتی در مورد *Melyris oblonga* (Fabricius, 1775) (Coleoptera: Melyridae) از جنوب غرب ایران

مهدی اسفندیاری[1]، فاطمه کرملاچعب[*1]

۱- *نویسنده مسوول: گروه گیاه‌پزشکی، دانشکده کشاورزی، دانشگاه شهید چمران اهواز، اهواز، ایران (fkby0428@gmail.com)

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چکیده

این مطالعه اطلاعات جدیدی در خصوص زیست شناسی و پراکنش گونه‌ی *Melyris oblonga* (Fabricius, 1775) را از جنوب غربی ایران ثبت می‌کند که نشان‌دهنده اولین گزارش تأییدشده این گونه از این منطقه است. لاروها درون یک قارچ بازیدیومایست که روی درخت کنار (*Ziziphus spina-christi*) رشد می‌کرد، مشاهده شدند. پرورش لاروها نشان داد که برای دوره‌های طولانی روی قارچ زنده ماندند و یک لارو با موفقیت در شرایط کنترل‌شده آزمایشگاهی به حشره بالغ تبدیل شد. این نمونه به‌عنوان *M. oblonga* شناسایی و در کلکسیون حشرات دانشگاه شهید چمران اهواز نگهداری می‌شود. مشاهدات حاکی از آن است که این گونه سالانه یک نسل کامل دارد. ویژگی‌های ریخت‌شناسی هر دو مرحله لاروی و بالغ به اختصار توصیف شده و محدوده جغرافیایی پراکنش آن جنوب ایران را دربر می‌گیرد. یافته‌ها همچنین گزارش‌های پراکنده درباره ارتباط این گونه با زیستگاه‌های داخلی، محصولات انباری و بسترهای قارچی را تکمیل می‌کنند و بینش جدیدی در مورد بوم‌شناسی و زیست‌شناسی این گونه کمیاب ارائه می‌دهند.

کلید واژه‌ها: قارچ بازیدیومایست، پراکنش گونه‌ای، فون، Melyrini

دبیر تخصصی: دکتر محمد مهدی ربیعه

Introduction

Members of the family Melyridae (soft-winged flower beetles) are small, elongate-oval, and soft-bodied, rarely exceeding 10 mm in length. They are often conspicuously patterned, frequently displaying combinations of brown, red, and black. Certain groups, particularly within the Malachiinae, bear distinctive orange abdominal structures which can be everted into saclike forms or withdrawn so as to remain unobtrusive. Some species also present markedly enlarged basal antennomeres. Even though both larvae and adults are primarily predatory, many species are regularly encountered on flowers (Triplehorn & Johnson, 2005). Melyridae are the largest lineage of the superfamily Cleroidea, comprising approximately 300 genera and 5,500 species distributed across all major biogeographic regions. Nevertheless, the familial circumscription of Melyridae has been historically unstable. Early authors generally adopted a broad concept of Melyridae, incorporating the subfamilies Prionocerinae, Rhadalinae, Malachiinae, and Dasytinae. In contrast, subsequent treatments classified Melyridae sensu lato into several distinct families. Current classifications recognize Dasytinae, Malachiinae, and Rhadalinae as subfamilies within Melyridae (Bocakova et al., 2012; Yuan et al., 2021).

Larvae of Melyridae primarily consume detrital material, fungi, and small arthropods. Some species are additionally associated with mantid oothecae (Plonski et al., 2021). Information on the larval biology of the genus *Melyris* remains scarce. To date, only a single species of Melyridae has been recorded from Iran (Shahhosseini & Kamali, 1989; Mirutenko & Ghahari, 2018).

Materials and Methods

In early March 2024, small larvae were discovered within a basidiomycete fungus growing on Christ's thorn jujube (Figures 1 and 2). The larvae appeared to be living inside the fungal tissue and were subsequently collected and reared to adulthood for taxonomic identification. Here, we found the larvae only in fungus, and it seems that the insect also feeds on fungus. This larva was placed in a separate Petri dish, where a few small pieces of the fungus were also transferred to the Petri dish. The larva survived for 70 days at room temperature and successfully molted once. Nevertheless, the second molting attempt after 70 days was unsuccessful, and the larva died. No fecal matter was observed in the larva's container, even though the larva appeared to be feeding on the fungus.

Another sample of the fungus isolated from the tree was refrigerated for one month. Next, a second larva was discovered within it. This larva was transferred to a growth chamber for two months under controlled conditions: 25°C temperature, 65% humidity, and a 16:8-hour light:dark photoperiod. Under these conditions, the larva was successfully reared on the fungal substrate and completed development into an adult insect, with feeding of the larva on the fungus directly observed.

Results and Discussion

The adult beetle was identified as *Melyris oblonga* (Fabricius, 1775) (Figure 3). The species appears to complete a single generation annually; however, this inference is based solely upon preliminary observations and remains insufficient to support broad generalization

Family Melyridae Leach, 1815

Tribe Melyrini Leach, 1815

***Melyris oblonga* (Fabricius, 1775) (Coleoptera: Melyridae)**

Zygia oblonga, Fabr. Syst. Ent. p. 126 (1775); Schilsky, Käf. Europ. xxxiv. No. 94 (♂♀) (1897).

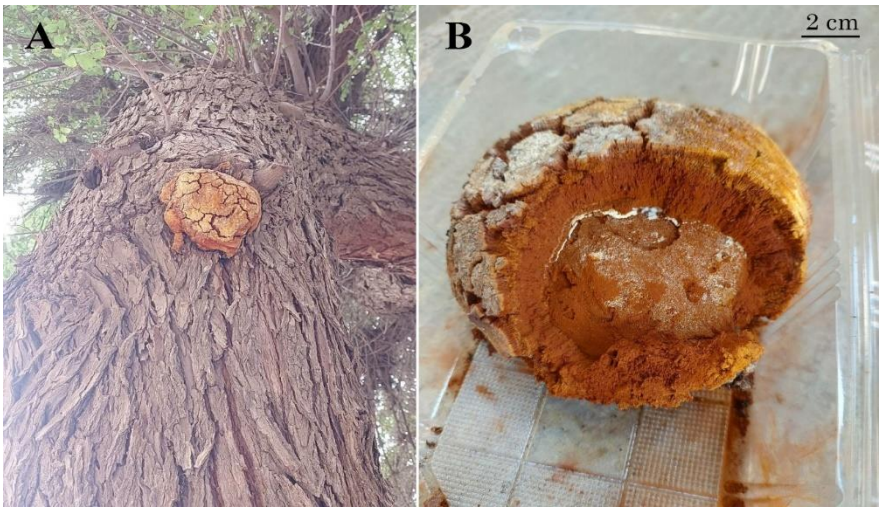


Figure 1. The basidiomycete fungus observed on Christ's thorn jujube in Ahvaz, SW Iran, A: fungus on host tree (iNaturalist: 330123712), B. fungus detached and transferred to the laboratory (iNaturalist: 330123713).



Figure 2. Larva of *Melyris oblonga* collected on a basidiomycete fungus in Ahvaz, SW Iran.

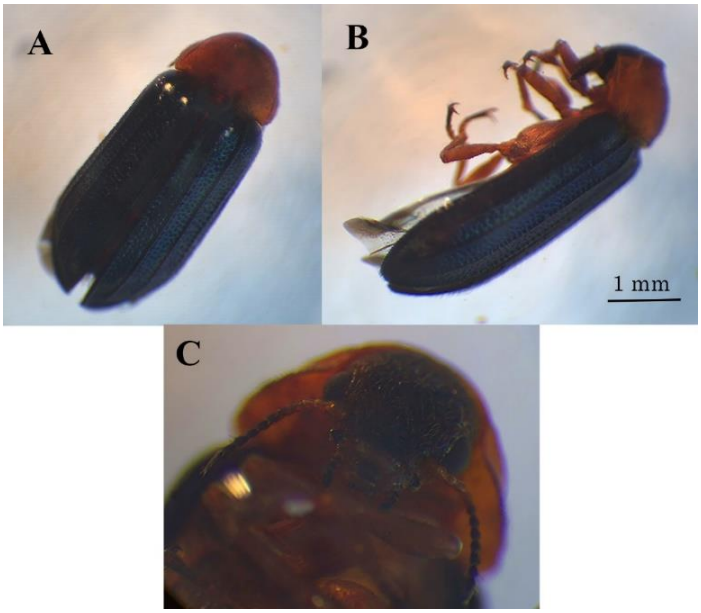


Figure 3. Adult of *Melyris oblonga* collected on a basidiomycete fungus in Ahvaz, SW Iran, A. Dorsal view, B. Lateral view, C. Head and mouth parts.

Material examined: 1 male. 31° 18′ 13″ N 48° 39′ 31″ E. Shahid Chamran University of Ahvaz (SCU) campus, Faculty of Agriculture, Ahvaz, Iran; deposited in the Insect and Mite Collection of Ahvaz at SCU.

Larvae are fawn red, 15-20 mm in length with a thick dorsal view. It has long, stiff hairs which increase in number and size toward the back.

Adults are elongate-oval; head is dark; pronotum, abdomen and legs are fawn red. The elytra metallic, vary in color and is violaceous, blue, or black. Adult can exceed 9 mm.

Distribution: Asia Minor, Egypt, France (southern), Germany (Hamburg), Greece, Italy, Algeria, Iraq, Persian Gulf region, Spain, Syria, Tunisia, Nearctic Region (Mirutenko & Ghahari, 2018).

It was previously only recorded from Tehran by Shahhosseini and Kamali (1989). Thus, it is the second report from Iran and first report from southern Iran (Mirutenko & Ghahari, 2018). Indeed, Shahhosseini and Kamali (1989) listed this species in a checklist of insects affecting stored products in Iran, according to unpublished records of Iranian Research Institute of Plant Protection. They believed that *M. oblonga* which was collected in Tehran museums feeds on dry wood.

There is little information on the biological details of the genus *Melyris*. Nevertheless, Melyridae adults occur in flowers and feed on pollen while larvae are predators (Triplehorn & Johnson, 2005). There are records of its presence indoors in food industry warehouses. It is associated with the storage of carob beans and their flour (Hagstrum & Subramanyam, 2009). Larvae may feed on other insects as well as other dried materials (such as Dermestidae beetles). Reports from Barcelona note that these red larvae occasionally occur in human dwellings, where their presence may elicit strong feelings of disgust and, in some cases, provoke irrational reactions among residents. The larvae develop within indoor environments, and in spring the adults emerge and disperse outdoors to forage on flowers and to reproduce. When oviposition is required, the female may return to the interior habitat in which she developed, as it offers suitable conditions for the successful development of her progeny (Pradera, 2019).

In contrast to the broad spectrum of insect–fungus relationships synthesized by Nicoletti and Becchimanzi (2022), spanning mutualistic gut symbioses, fungiculture and entomopathogenic associations (e.g. *Beauveria bassiana* in Moghassem et al. (2023)), the present observations document a direct mycophagous relationship in which *Melyris oblonga* larvae develop within and feed on a basidiomycete fruiting body on living *Ziziphus spina-christi*. Whereas most network-level studies of insect–fungus interactions emphasize structurally complex, moderately specialized and anti-nested assemblages in dead wood, dominated by wood-decay fungi and diverse beetle guilds, our data reveal a substrate-specific association, with larval development completed inside a single basidiome in a semi-arid, tree-crown microhabitat. Such a confined developmental niche differs from the largely opportunistic spore-feeding and dispersal roles inferred for many saproxylic beetles on polypores. Instead, it aligns with the subset of interactions in which fungi provide both food and shelter over most of the insect's life cycle (Jacobsen et al., 2018). By adding a confirmed case of basidiome-based development for a melyrid species previously reported mainly from indoor habitats, stored products and dead wood, the present findings extend the ecological spectrum of coleopteran–fungus associations beyond the temperate forest detritivore networks (Jacobsen et al., 2018).

Conclusion

This study confirmed the presence of *Melyris oblonga* in southwestern Iran and provided the first documented evidence of its larvae development, thereby expanding the known ecological niche as well as geographic range of this poorly understood species.

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