Pollinator Academy

Genus: *Merodon*

Merodon chrysotrichos male

Genus: *Merodon* Meigen, 1803

Family: Syrphidae

Subfamily: Eristalinae

Tribe: Merodontini

Number of species of this genus found in Europe: 133

Description

Head

The face of *Merodon* is concave, without a facial tubercle, covered with long hairs, is and shiny or dusted. The eye is holoptic in the male and dichoptic in the female. The eye is hairy, the colour of the hairs ranges from white (or yellowish) to black. The shape and width of the frons is variable, in the male the frons is raised, covered with long hairs, and can be shiny or dusted. The frons of the female is generally covered with shorter hairs and is less dusted than in the male, usually with a narrow or broad lateral dust stripe along the eye, while being medially shiny. The ocellar triangle is isosceles or equilateral. The basoflagellomere is rounded or elongate, the colour ranges from pale orange to brown-black. The basoflagellomere has a dorsal fossette (sometimes extending laterally), and a bare arista inserted baso-dorsally. The female generally has a larger basoflagellomere than the male.

Thorax

Dark brown to black, covered with medium to long hairs (shorter in female), except bare on pleura at anterior and posterior ends (anepisternum with bare area ventral to postpronotum or with patch of hairs), colour of hairs is variable. Dorsal and ventral hair patches of katepisternum are separated or almost confluent anteriorly. The scutum is matte or shiny, with or without white dust stripes.

Wings

Usually hyaline but sometimes infuscated, largely covered with microtrichia, with a looped radial vein R_{4+5}, as well as a recurrent vein M_1.

Legs

The hind femur has a spinose triangular lamina apico-ventrally. Sometimes the hind leg can be incrassate, especially in males, and can have different projections on trochanter, femur and tibia. The only species that has a broadened front tarsus (like in genus *Platycheirus*) is *Merodon hamifer*.

Merodon unicolor male habitus

Merodon equestris rear femur

Merodon luteihumerus male head

Abdomen

Oval or elongate, black, with length, composition, inclination and colour of pilosity, and presence of dusting on tergites and sternites variable. Tergite 2 often with orange triangular antero-lateral spots, and in many species whitish dust bands present on tergites 2-4. Generally the female is less and shorter pilose. Sternites are often simple, rarely with some protuberance(s) like in *M. papillus* which has two tubercles in the middle of the posterior margin of sternite 4.

General comments on identification to species level

Merodon desuturinus male habitus

Merodon moenium male habitus

Merodon natans male habitus

Differential diagnosis

The genus *Merodon* comprises stout hoverflies, often hairy, bee or bumblebee mimics, with a concave face, and oval or tapering abdomen. The body length is ranging from 5 - 23 mm. The closest genera are *Eumerus* and *Platynochaetus*, but contrary to *Merodon* these genera lack the triangular lamina on hind femur, and *Platynochaetus* additionally has a characteristic very long arista which apically broadened. Bumblebee mimic species, like *Merodon equestris* can be confused with other bumblebee-mimicking hoverflies, but the presence of a triangular lamina on hind femur and specific wing venation pattern with a looped radial vein R_{4+5}, as well as a recurrent vein M_1, these characteristics in combination provides important diagnostic characters for the genus to readily distinguish it from other genera. A genus which also has a triangular lamina on the hind femur and a looped radial vein R_{4+5} of wing is *Tropidia*, but it lacks a pterostigmal cross vein that connects veins Sc and R_1, and additionally the vein M_1 is not recurrent, in contrary to *Merodon*. Additionally, the facial profile in *Tropidia* is straight, whereas in *Merodon* it is concave.

There are five monophyletic lineages within the genus *Merodon*: the *albifrons* , *aureus*, *avidus-nigritarsis*, *desuturinus*, and *natans* lineages.

Platynochaetus macquarti male habitus

Eumerus strigatus habitus man

Tropidia scita male habitus

Geographical distribution and global diversity

The genus *Merodon* is found in the Palaearctic and Afrotropical biogeographical regions. With more than 130 species known from Europe, *Merodon* is the largest European hoverfly genus. A majority of the species are southern European in distribution. Marcos-Garcia et al. (2007) provide a key to separate the Iberian species but there is no key that deals with all of the European species.

Presence in Europe

Albania, Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Gibraltar, Greece, Hungary, Ireland, Isle of Man, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Moldova, Montenegro,

Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russian Federation - European Russia, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom.

Biology

Adult behaviour and flower preferences. The adult flies are mostly found near the ground, flying among the vegetation or close to the ground, or resting on stones or bare soil. Very often males perform territorial behaviour. The adults visit flowers of a wide range of plant species, including their host plants, but frequently yellow and white flowers of Asteracae and Apiaceae.

Reproduction and larval biology. The larvae are phytophagous and feed exclusively on bulbs or rhizomes of monocotyledonous geophytes, such as members of the Liliaceae, Hyacinthaceae and Amaryllidaceae (Hurkmans, 1993). The diversity of bulbous plants in the Mediterranean region closely matches the known distribution and diversity of the genus *Merodon* in this area (Vujić et al. 2020).

Seasonal life cycle. The majority of the species are univoltine, but there are also bivoltine species. They overwinter as puparium or in the larval stage. It is likely that the last larval stage leaves the host plant bulb and moves to the soil where it pupates.

Type species: *Syrphus clavipes* Fabricius, 1781

Common names:
FI - narsissikärpäset;
SV - narcissblomflugor;
NO - narsissfluer

List of species found in Europe:

A full listing of species occurring in Europe will be provided on the Pollinators web platform.

References

Marcos-Garcia, M. A., Vujić, A., Mengual, X. (2007): Revision of Iberian species of the genus *Merodon* Meigen, 1803 (Diptera: Syrphidae). *European Journal of Entomology*. 104: 531-572.

Speight MCD (2020) Species accounts of European Syrphidae, 2020. *Syrph the Net, the database of European Syrphidae (Diptera)*. Syrph the Net publications, Dublin, vol. 104, 314 pp.

Speight, M.C.D. & Langlois, D. (2020) Keys to the males of *Merodon* species known from France, 2020 (Diptera: Syrphidae). *Syrph the Net, the database of European Syrphidae (Diptera)*, vol. 111, 60 pp., Syrph the Net publications, Dublin.

Vujić, A., Speight, M., de Courcy Williams, M., Rojo, S., Ståhls, G., Radenković, S., Likov, L., Miličić, M., Pérez-Bañón, C., Falk, S. & Petanidou, T. (2020) *Atlas of the Hoverflies of Greece*. Leiden, The Netherlands: Brill. https://doi.org/10.1163/9789004334670

Vujić A, Radenković S, Likov L, Veselić S. 2021. Taxonomic complexity in the genus *Merodon* Meigen, 1803 (Diptera, Syrphidae). *ZooKeys* 1031: 85-124. https://doi.org/10.3897/zookeys.1031.62125

Attributions

This factsheet was created by Taxo-Fly and is one of the outputs from a network of European Initiatives dedicated to pollinators, such as the EU Pollinator Monitoring Scheme (EUPoMS), the Preparatory Action for EU Pollinator Monitoring Scheme and Indicators (SPRING project), the

Horizon 2020 Europe research projects (POSHBEE, SAFEGUARD), and European National action plans for pollinators.

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Taxo-Fly Pollinator Academy Funded by the European Commission