



Genus: *Volucella*



Volucella pellucens male

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Genus: *Volucella* Geoffroy, 1762

Family: Syrphidae

Subfamily: Eristalinae

Tribe: Volucellini

Number of species of this genus found in Europe: 6

Description

Head

The face is concave below antennal insertion, delimiting a facial tubercle, and has hairs. The head is holoptic in males and dichoptic in females and the eyes have hairs, except for the female of *Volucella pellucens*. The sub-basal arista is plumose, with long hairs on the ventral side and even longer hairs on the dorsal site; with hairs at least three times as long as basal diameter of arista.

Thorax

There are black bristles on the notopleuron, supra-alar area and postalar callus. Some species also have bristles along the posterior margin of the scutum (anterior to the scutellum), along the posterior margin of the scutellum, and on the posterior anepisternum and anepimeron. The metasternum is hairy.



Volucella pellucens head lateral



Volucella elegans male scutellum



Volucella inanis male habitus

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Wings

Volucella has veins R_1 and R_{2+3} merging before the wing margin to form a petiole and enclosing cell r_1 , and the vein M_1 strongly recessive.

Legs

Legs without modifications.

Abdomen

Abdomen broad, broader than thorax, oval.

General comments on identification to species level

Differential diagnosis

The genus *Volucella* belongs to the tribe Volucellini, together with the genera *Graptomyza* Wiedemann, 1820, *Ornidia* Le Peletier & Audinet-Serville, 1828 and *Copestylum* Macquart, 1846. Volucellines are recognised by their straight or recessive wing vein M_1 and plumose arista.

Volucella species are quite diverse morphologically. In Europe there are six *Volucella* species: one mimics bumblebees (*V. bombylans*), has the thorax and the abdomen covered with long erect dense hairs, and lacks bristles on the scutellum; and all other five European species of *Volucella* have the thorax and abdomen covered with short adpressed hairs, and have distinct bristles on the posterior margin of the scutellum.

In Europe there are a few genera with plumose antennae, i.e., arista with hairs at least three times as long as basal diameter of arista. These genera are quite distinct from *Volucella*: for instance some species of *Brachyopa* and *Hammerschmidtia*, and the species of *Sericomyia*. Species of these three mentioned genera have wing cell r_1 open, not petiolate, and the vein M_1 processive apically or meeting vein R_{4+5} at right

angle. *Volucella* has veins R_1 and R_{2+3} merging before the wing margin to form a petiole and enclosing cell r_1 , and the vein M_1 strongly recessive. Moreover, *Brachyopa* and *Hammerschmidtia* are flies with an overall colouration orange or orange and dark grey, not wasp or bumble bee mimics. Another difference is that *Sericomyia* species have a hairy katepimeron, while *Volucella* has a bare katepimeron.

Together with the plumose arista, *Volucella* species have the vein R_{4+5} straight, the vein M_1 recessive in the anterior half, the hind leg femur not swollen, and a prominent facial tubercle. *Volucella* species share these characteristics with *Copestylum melleum*, an introduced species to the Canary Islands from the American continent.

Volucella species have long hairs on the anterior anepimeron, and the face is concave below antennal insertion delimiting a well-defined facial tubercle, whereas *C. melleum* has a bare anterior anepimeron and a straight face, with an inconspicuous facial tubercle. Moreover, *C. melleum* has an orange abdomen; a pattern not occurring among the European species of *Volucella*.



Volucella bombylans male habitus



Volucella zonaria male habitus



Volucella inflata male habitus

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Geographical distribution and global diversity

Volucella occurs in the Australasian, Oriental, Palearctic and Nearctic Regions. It comprises 52 species, which mimic bumblebees and wasps: 27 reported in the Palearctic, 28 in the Oriental region, three in the Nearctic and one in the Australasian region.

Presence in Europe

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

Biology

Adults are often found in open areas in forest and scrub to suburban gardens and parks, but they occur in a wide range of different situations on migration. Some species (*V. inanis* and *V. zonaria*) are migratory.

The larval biology of this genus is diverse. Larvae of *V. zonaria* and *V. pellucens* are associated with *Vespa crabro* and *Vespula* species, acting as a scavenger in the nests of these wasps and also eating dead wasp larvae (Bot & Van de Meutter 2023). The larvae of *V. bombylans* are known to be detritivores or to feed on dead bumblebee larvae in nests of bumblebees (*Bombus* species). The larva of *V. inanis* is an obligatory ectoparasitoid on host larvae (*Vespula germanica* and *V. vulgaris*) throughout its development and stays in the cells of the comb. Larvae of *V. inflata* are saprophagous and inhabitants of insect-workings in which sap and insect faeces/tree humus provide a sub-aqueous mix.



Type species: *Musca pellucens* Linnaus, 1758

Common names:

FI - pistiäisvieraat;

NB - humleblomsterfluer;

SV - humleblomflugor

List of species found in Europe:

1. *Volucella bombylans* (Linnaeus, 1758)
2. *Volucella elegans* Loew, 1862
3. *Volucella inanis* (Linnaeus, 1758)
4. *Volucella inflata* (Fabricius, 1794)
5. *Volucella pellucens* (Linnaeus, 1758)
6. *Volucella zonaria* (Poda, 1761)

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