

Attraction of the males of *Adscita statices* (Linnaeus, 1758) (Zygaenidae, Procridinae) by synthetic sex attractants EFETOV-2 and EFETOV-S-2 in Sweden

Konstantin A. Efetov

Crimean Federal University, Department of Biological Chemistry and Laboratory of Biotechnology, RU-295051 Simferopol, Crimea; efetov.konst@gmail.com

Nils Ryholm

University of Gävle, Section of Biology, AHA, 801 76 Gävle, Sweden; Nils.Ryholm@hig.se

Elena E. Kucherenko

Crimean Federal University, Department of Biological Chemistry and Laboratory of Biotechnology, RU-295051 Simferopol, Crimea

In recent years, there has been an increasing amount of literature on various approaches to the study of pheromone systems in Insecta. Much of the current research on attractive molecules pays particular attention to their chemical structure, isomerism and biosynthesis (Efetov et al., 2010, 2011, 2015, 2016; Efetov & Gorbunov, 2016; Subchev et al., 2010, 2012, 2013).

The synthetic sex attractants EFETOV-2 and EFETOV-S-2 created in the Crimean Federal University (Efetov et al., 2014) were tested in Sweden in 2016 and 2017. Cardboard strips containing rubber caps with the baits were hung on plants at a height of 0.5–1.0 m above the ground. A specimen was considered attracted if a male landed on the strip or flew up and touched it.

The field trials were conducted in three localities: northern Gästrikland in the village Rönnåsen, 60 km NW of Gävle (eastern central Sweden); Hörröd, Skåne County (south Sweden) and Ravlunda, Skåne County (south Sweden).

It was shown that EFETOV-2 and EFETOV-S-2 were attractive for the males of *Adscita* (*Adscita*) *statices* (Linnaeus, 1758). It should be noted that EFETOV-2 (the racemic mixture of *R*- and *S*-enantiomers of 2-butyl 2-dodecanoate) was more active than EFETOV-S-2 (*R*-enantiomer). In 2016: Gästrikland, Rönnåsen – 400–420 males attracted to EFETOV-2 and 145–160 males attracted to EFETOV-S-2; Skåne, Hörröd – 26 males attracted to EFETOV-2 and 16 males attracted to EFETOV-S-2; Ravlunda – 155 males attracted to EFETOV-2 and 39 males attracted to EFETOV-S-2. The data for 2017 are: Gästrikland, Rönnåsen – 20 males attracted to EFETOV-2 and 3 males attracted to EFETOV-S-2; Skåne, Hörröd – 103 males attracted to EFETOV-2 and 32 males attracted to EFETOV-S-2; Ravlunda – 32 males attracted to EFETOV-2 and 5 males attracted to EFETOV-S-2. The lower number in 2017 is mainly due to more unfavorable weather and thus fewer trials than in the previous year.

These results correspond well with the fact that the males of another subspecies *A. (A.) statices drenowskii* (Alberti, 1939) were also mainly found in traps with EFETOV-2 during investigations in the Thrace Region (European Turkey) in 2016 (Can et al., 2018).

Key words: Procridinae, sex attractants, EFETOV-2, EFETOV-S-2, *Adscita statices*, Sweden.

References

- Can Cengiz, F., Efetov, K. A., Kaya, K., Kucherenko, E. E., Okyar, Z. & Tarmann, G. M. 2018. Zygaenidae (Lepidoptera) of Thrace Region of Turkey. *Nota Lepidopterologica* **41**: 23–36.
- Efetov, K. A., Can, F., Toshova, T. B. & Subchev, M. 2010. New sex attractant for *Jordanita anatolica* (Naufock) (Lepidoptera: Zygaenidae: Procridinae). *Acta Zoologica Bulgarica* **62**: 315–319.
- Efetov, K. A. & Gorbunov, O. G. 2016. Attraction of the males of *Adscita statices* (Linnaeus, 1758) (Lepidoptera: Zygaenidae, Procridinae) by synthetic sex attractant in Moscow Region. *Tavricheskiy Mediko-biologicheskiy Vestnik* **19**(3): 40–46.
- Efetov, K. A., Kucherenko, E. E., Parshkova, E. V. & Tarmann, G. M. 2016. 2-butyl 2-dodecanoate, a new sex attractant for *Jordanita (Tremewaniana) notata* (Zeller, 1847) and some other Procridinae species (Lepidoptera: Zygaenidae). *SHILAP Revista de Lepidopterología* **44**: 519–527.

- Efetov, K. A., Parshkova, E. V., Baevsky, M. Y. & Poddubov, A. I.** 2014. Sec-butyl ester of dodecenoate: synthesis and attractive properties. *The Ukrainian Biochemical Journal* **86**(6): 175–182.
- Efetov, K. A., Subchev, M. A., Toshova, T. B. & Kiselev, V. M.** 2011. Attraction of *Zygaenoprocris taftana* (Alberti, 1939) and *Jordanita horni* (Alberti, 1937) (Lepidoptera: Zygaenidae, Procridinae) by synthetic sex pheromones in Armenia. *Entomologist's Gazette* **62**: 113–121.
- Efetov, K. A., Tarmann, G. M., Toshova, T. B. & Subchev, M. A.** 2015. Enantiomers of 2-butyl 7Z-dodecenoate are sex attractants for males of *Adscita mannii* (Lederer, 1853), *A. geryon* (Hübner, 1813), and *Jordanita notata* (Zeller, 1847) (Lepidoptera: Zygaenidae, Procridinae) in Italy. *Nota Lepidopterologica* **38**: 161–169.
- Subchev, M., Efetov, K. A., Toshova, T., Parshkova, E. V., Tóth, M. & Francke, W.** 2010. New sex attractants for species of the zygaenid subfamily Procridinae (Lepidoptera: Zygaenidae). *Entomologia Generalis* **32**: 243–250.
- Subchev, M. A., Koshio, C., Toshova, T. B. & Efetov, K. A.** 2012. *Illiberis (Primilliberis) rotundata* Jordan (Lepidoptera: Zygaenidae: Procridinae) male sex attractant: Optimization and use for seasonal monitoring. *Entomological Science* **15**: 137–139.
- Subchev, M., Koshio, C., Toshova, T., Efetov, K. A. & Francke, W.** 2013. (2R)-butyl (7Z)-dodecenoate, a main sex pheromone component of *Illiberis (Primilliberis) pruni* Dyar (Lepidoptera: Zygaenidae: Procridinae)? *Acta Zoologica Bulgarica* **65**: 391–396.

XVI. International Symposium on Zygaenidae

1-5 May 2018

İzmir-Turkey

Scientific Programme and Abstracts

İzmir, 2018