



**First records of *Chrysomya albiceps* (WIEDEMANN, 1819)
(Diptera: Calliphoridae) in Belarus
with analysis of distribution of this species in Europe**

**Pierwsze stwierdzenie *Chrysomya albiceps* (WIEDEMANN, 1819)
(Diptera: Calliphoridae) na Białorusi
z analizą rozmieszczenia tego gatunku w Europie**

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ABSTRACT. The first records of *Chrysomya albiceps* (WIEDEMANN, 1819) in Belarus are published. The literature data on modern irradiation of this species in Europe are analyzed.

KEY WORDS: Calliphoridae, *Chrysomya albiceps*, Belarus, new records

INTRODUCTION

Currently genus *Chrysomya* ROBINEAU-DESVOIDY, 1830 is represented in Europe by constant populations of two species: *C. megacephala* (FABRICIUS, 1794) and *C. albiceps* (WIEDEMANN, 1819). Hemisynanthropic species *C. megacephala* dispersed from its original distribution (Oriental and Australasian/Oceanian zoogeographic regions) in warm parts of another continents, including southwest Europe: continental Spain since 1997 (MARTÍNEZ-SANCHEZ *et al.* 2007, VELÁSQUEZ *et al.* 2008), Portugal since 2008 (PRADO E CASTRO & GARCÍA 2009, PRADO E CASTRO *et al.* 2012), Canary Is. since 1980 (BÁEZ *et al.* 1981, SCHUMANN 1986), and Malta since 2006 (EBEJER 2007).

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C. albiceps is native tropical and subtropical African species (HALL & WALL 1995, JAMES 1947, ZUMPT 1956A, B). This hemisynanthropic species has significant forensic, sanitary and epidemiological importance (GRASSBERGER *et al.* 2003, HALL & SMITH 1993, SMITH 1986, JAMES 1947, MARCHENKO 1985, ZUMPT 1965). Its modern expansion is generally documented in several zoogeographic regions (SCHUMANN 1986). *C. albiceps* is extensively distributed in Oriental region, i.e. south China (ALY *et al.* 2012), India, Pakistan (HALL & SMITH 1993), Thailand (SANIT *et al.* 2013). This species is known from the almost all African countries and coastal islands south of Sahara desert. In Palaearctic Asia *C. albiceps* occupied almost all territories with subtropical or temperate climates. This species began to inhabit Neotropical region since the mid 70s of the 20th century (GUIMARÃES *et al.* 1978).

MATERIAL AND METHODS

The flies were collected in 2017 in western part of Belarus using an entomological net and IRWIN's traps. Mice carcasses were used as a bait and saline solution as a fixing fluid. Flies were identified with the keys of DRABER- MOŃKO (2004) and GRUNIN (1970).

RESULTS

Chrysomya albiceps (WIEDEMANN, 1819)

(FIG. 1-2)



FIG. 1. *Chrysomya albiceps* (WIEDEMANN, 1819), ♀, Minsk reg., Stolbcy distr., Semenchitsy village. Leg. et det. K. MAKOVETSKAYA (PHOTO P. PROCHORCHIK).

MATERIAL EXAMINED

BELARUS, Brest region, Bereza district, Republican Biological Reserve «Sporovskiy», near Mostyki village, N 52°23,008'; E 25°10,998'. The border of sedge bog and pine forest, IRWIN's trap, 19. VIII – 19. XI. 2017, 2 ♀.

BELARUS, Minsk region, Stolbtsy district, Semenchitsy village, N 53°32,801'; E 26°41,951'. Entomological net collecting on flowering plants growing on country cottage area, 20. VIII. 2017, 1 ♀.

DISCUSSION

The last research of Calyptratae fauna at the Belarus territory was done in the past century (BIRG 1971, DRABER-MOŃKO 1995), therefore, it is difficult to make time for the appearance of this fly there. *C. albiceps* rapidly expands its area to the north of Europe during the end of XX – beginning of XXI centuries. Previous overviews of its distribution in Europe were made by POVOLNÝ (2002), GRASSBERGER *et al.* (2003), VERVES (2004), and SZPILA *et al.* (2008). The additional data on modern distribution of *C. albiceps* in European countries are given in alphabetical order: Austria (GRASSBERGER & FRANK 2004); Belgium (GOSSELIN *et al.* 2007); Germany (AMENDT *et al.* 2002, KOTRBA *et al.* 2012); Hungary (UJVÁRI & BOZO 2014); Italy (BONACCI *et al.* 2010, BUGELLI *et al.* 2018, DEFILIPPO *et al.* 2011, LAMBIASE & CAMERINI 2009, LAMBIASE *et al.* 2008a; LAMBIASE *et al.* 2008b, MILANO *et al.* 2008a, MILANO *et al.* 2008b; VANIN *et al.* 2007, 2009), Macedonia (KLEKOVSKA *et al.* 2017); Madeira I. (PRADO E CASTRO *et al.* 2010); Moldova (VERVES 2003); Netherlands (ROGNES 2004); Romania (IANCU & PARVU 2013, IANCU *et al.* 2016); Portugal (LOUÇÃO 2017, PRADO E CASTRO *et al.* 2009, PRADO E CASTRO *et al.* 2011, 2012, REBELO *et al.* 2014); Spain (LENCINA 2010, DÍAZ-MARTÍN & SALOÑA-BORDAS 2015, MARTÍNEZ-SÁNCHEZ *et al.* 2007, MARTIN-VEGA *et al.* 2017, RIVERA & ALMEIDA 2012, SOLER-CRUZ 2000; VELÁSQUEZ *et al.* 2008).

What about neighboring to Belarus countries, that in Ukraine *C. albiceps* was firstly collected at south coast of Crimea (GRUNIN 1970). Later, this species was registered in the Kyiv region (VERVES 2004, 2005), Zakarpattia region (VERVES 2005), Kyiv City, Kherson, Odesa and Sumy regions (VERVES 2010). In Poland this species has been registered since 2007 (MICHALSKI & SZPILA 2016, SZPILA *et al.* 2008, SZPILA K. 2017.), and since 2016 – in Lithuania (LUTOVINOVAS & MARKEVIČIŪTĖ 2017). From European part of Russia this species is known from Orenburg region (AGEEVA, 2007).

In our opinion, this native subtropical species began to spread in Belarus as well as into other temperate territories after the adaptation of part of the European populations to more severe overwintering conditions in the end of 20th – beginning of 21st centuries only. Adult flies are most abundant in temperatures below 26° C (HOLDAWAY 1933). Taking into account the assumption, that temperatures less than 15°C block the growth of larvae from eggs, and maximal time of development ranging 18-20 days at 20° C (GRASSBERGER *et al.* 2003), *C. albiceps* is able to relocate to a large portion of the European and south part of the Asian territories of Russia in the nearest future.

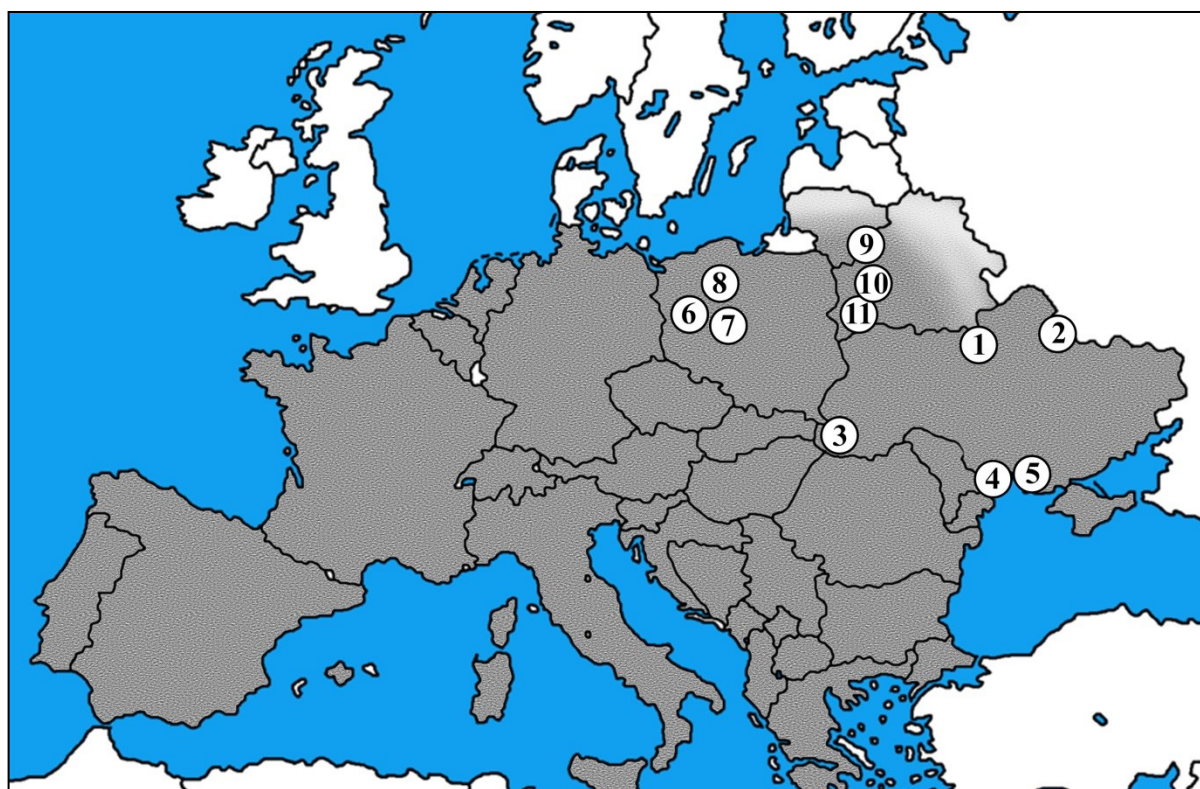


FIG. 2. Current distribution of *Chrysomya albiceps* (WIEDEMANN, 1819) in Europe with records in Belarus and neighboring countries:

1 – **Ukraine**, Kyiv region (VERVES 2004, 2005, 2010); 2 – **Ukraine**, Sumy regions (VERVES 2010); 3 – **Ukraine**, Zakarpattia region (VERVES 2005); 4 – **Ukraine**, Odesa (VERVES 2010); 5 – **Ukraine**, Kherson (VERVES 2010); 6 – **Poland**, Biedrusko Military Range (SZPILA *et al.* 2008); 7 – **Poland**, Toruń (MICHALSKI & SZPILA 2016); 8 – **Poland**, Łódź (MICHALSKI & SZPILA 2016); 9 – **Lithuania**, Vilnius District Municipality, Sužionys (LUTOVINOVAS & MARKEVIČIŪTĖ 2017); 10 – **Belarus**, Stolbcey district; 11 – **Belarus**, Bereza district.

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PODSUMOWANIE

W niniejszej pracy opublikowano pierwsze stwierdzenie *Chrysomya albiceps* (WIEDEMANN, 1819) na Białorusi. W oparciu o dostępne dane, w tym i literaturę, przeanalizowano rozmieszczenie tego gatunku w Europie i nie wykluczono jego dalsze potencjalne rozprzestrzenianie się na wschód Europy i w głąb Rosji.