Graptomyza (Whittington 1992), I have subsequently borrowed the syntype series from the Zoologisk Museum, Copenhagen. Examination of the syntypes (two males) confirms that the Afrotropical species revised in Whittington (1992) are members of this genus. In addition, it was evident that no primary type had been formally designated.

As the fauna of the Oriental and Australasian Regions still require taxonomic attention it is essential that the identity of the type species be fixed. Of the two male syntypes, I have chosen as lectotype the specimen bearing the identification label and most closely resembling Wiedemann's illustration. Precise specimen data, stated verbatim, with semicolons separating labels, are as follows.

Lectotype ♂: '♀' [sic]; 'Mus. Westerm.'; 'TYPE' [rectangular red label with black print]; '*G. longirostris* Wied. Batavia Aug. 1815.' [handwritten by Wiedemann].

Paralectotype ♂: 'Mus. Westerm.'; 'TYPE' [rectangular red label with black print].

Both specimens, which share (on a separate pin grouped with the specimens) a black-framed label: '*Graptomyza longirostris* Wied. Det. F C Thompson 71' have been provided with suitable type labels by me.

According to Wiedemann's label, the type locality is 'Batavia' (= Jakarta 06.10S 160.48E), although Knutson *et al.* (1975) gave Java as the type locality, a conclusion possibly based on the fact that Wiedemann's (1820) publication states: 'Habitat in insula Java.' The collector and date of collection are unknown, but since Wiedemann (1820) and the labels on the specimens state the original depository as 'In Museo Westermanni,' Westermann may have been the collector. The ♀ label on the lectotype is incorrect.

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Comparative susceptibility of *Chilocorus nigritus* (Fabricius) and *C. bipustulatus* (Linnaeus) (Coleoptera: Coccinellidae) to triazophos

A.S. Schoeman

Department of Entomology, University of Pretoria, Pretoria, 0002 South Africa

The coccinellid *Chilocorus nigritus* (Fabricius) has been reported as a voracious and important predator of many soft and hard scales, including red scale, *Aonidiella aurantii* (Maskell) (Hemiptera: Homoptera: Diaspididae) (Samways 1984; Schoeman 1987a,b). It is a useful addition to the existing natural enemy complex of citrus pests in southern Africa, and the beetles have been successfully used in various integrated control programmes (Bruwer & Schoeman 1988). It has been mass-reared, released and transferred from one citrus orchard to another at many localities in southern Africa (Bruwer & Schoeman 1988; Samways 1989). *Chilocorus bipustulatus* (Linnaeus) is an important predator of scale insects in Israel (Nadel & Biron 1964; Rosen & Gerson 1965; Hattingh & Samways 1990), but has not been used to the same extent as *C. nigritus* as a predator in South Africa. The latter species has, however, been subjected to insecticide selection through its implementation as a biological control agent, whereas *C. bipustulatus* has not been subjected to insecticide selection. The susceptibility of *C. bipustulatus* to triazophos (Hostathion) had previously not been measured and was included in this experiment to compare its susceptibility to triazophos with that of *C. nigritus*. This study forms part of a programme to monitor the effect of selected insecticides on natural enemies of insect pests.

Chilocorus nigritus and *C. bipustulatus* were mass-reared in an insectary at 28 ± 1 °C and 50 ± 5 % relative humidity. Red scale, *A. aurantii*, reared on butternuts, *Cucurbita moshata* (Tournhalle), were used as food for the beetles. Adults of the same age (10 days) were used in the experiments. Beetles from Zebediela Estates (24.18S 29.15E) (*C. nigritus* and *C. bipustulatus*) and Nelspruit (25.28S 30.58E) (*C. nigritus*) were initially reared through one generation (F1), to ensure the same age distribution, and treated with triazophos. The beetles were kept in the insectary for a further 10 generations (F10) without any insecticide contact and treated again (*C. nigritus*) with triazophos.

Topical applications were carried out with triazophos diluted in acetone with a micro-pipette. Adult beetles were anaesthetized with CO_2 before the applications were made. Each beetle received 1 µl of the insecticide on its ventral surface. The control beetles were also anaesthetized but only treated with acetone. Doses between 2.14 and 214 mg/l of triazophos were used in the treatments.

Mortalities were determined 24 hours after the insecticide treatment and corrected using Abbott's formula for natural mortalities (Finney 1971). A total of 3729 *C. nigritus* (1858 ♂ and 1871 ♀) and 569 *C. bipustulatus* (286 ♂ and 283 ♀) was used in the experiments.

Regression (probit) lines for the beetles subjected to triazophos were made using a covariance analysis as described by Snedecor & Cochran (1967) and analysed according to the probit analyses programs P/PROBAN (Van Ark 1983) and PROBAN (Van Ark 1992).

The results of the probit analyses are presented in Table 1 and the probit regression lines in Fig. 1.

Fig 1. Probit regression lines of the effect of triazophos on *C. nigritus* (CnF1, CnF10) and *C. bipustulatus* (CbF1). The regression line (-- -) from a previous study (Schoeman 1987a) is included for comparison.

The probit regression lines, however, are combined lines for males and females.

From the analyses it is evident that the susceptibility of *C. nigritus* to triazophos, although less than the original population tested in previous studies (Schoeman 1987a,b), has not declined sufficiently to predict development of resistance in the field. The population was, nevertheless, less susceptible (LD_{50} 20.8 mg/l) than the so-called susceptible population tested in a previous study (LD_{50} 6.58 mg/l). The beetles subjected to continued insecticide selection in the previous study had a much higher LD_{50} of 58.43 mg/l. Although males of *C. nigritus* (LD_{50} 18.71 and 9.88) were slightly more susceptible than females (LD_{50} 21.93 and 10.90), the difference was not significant. The same pattern occurred in *C. bipustulatus* males and females. There was no significant difference in the susceptibility of the laboratory colonies of *C. nigritus* and *C. bipustulatus*. The field colony of *C. nigritus* differed significantly from both the laboratory colonies.

It is important that after 10 generations without insecticide selection in the insectary the LD_{50} decreased from 20.83 to 10.38. These results confirm the results of Schoeman (1987a) that the development of resistance at this low rate would be diluted by other *C. nigritus* individuals entering the orchards under field conditions. It can be concluded that the development of resistance may not be sufficient to survive a field treatment of triazophos at the recommended concentration

Table 1. Probit analyses of triazophos toxicity to *Chilocorus nigritus* and *C. bipustulatus*.

Population	Number of doses	Regression equation	LD_{50} mg/l	95 % fiducial limits	LD_{99} mg/l
Cn F1 ♂	6	$y = 1.3213x + 3.287$	18.71	24.17–15.77	1140.56
Cn F1 ♀	6	$y = 1.3458x + 3.195$	21.93	26.57–17.69	1174.13
Cn F10 ♂	6	$y = 1.4015x + 3.605$	9.88	11.78–8.12	451.85
Cn F10 ♀	6	$y = 1.3365x + 3.613$	10.90	13.02–8.93	599.99
Cb F1 ♂	5	$y = 1.2168x + 3.914$	7.81	11.30–4.76	637.57
Cb F1 ♀	5	$y = 1.0373x + 4.136$	6.81	10.47–3.62	1191.08

Cn = *C. nigritus*; Cb = *C. bipustulatus*

of 0.02 percent (Vermeulen *et al.* 1990).

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Predation of alate citrus thrips, *Scirtothrips aurantii* Faure (Thysanoptera: Thripidae), by *Euseius citri* (Van der Merwe & Ryke) (Acari: Phytoseiidae) at low temperatures

T.G. Grout & P.R. Stephen

Outspan Citrus Centre, P.O. Box 28, Nelspruit, 1200 South Africa

Several species of *Euseius* Wainstein are associated with citrus thrips, *Scirtothrips aurantii* Faure, on citrus (Grout & Richards 1992; Grout, unpubl.; Schwartz 1983). *Euseius addoensis* (Van der Merwe & Ryke) is an effective predator of citrus thrips in citrus orchards (Grout & Richards 1992), while