Re-characterization of two Lithosiini species recently described from the island of Taiwan, with establishing of a new combination and the corrected checklist of the genus Aberrasine Volynkin & Huang, 2019 (Lepidoptera: Erebidae: Arctiinae: Lithosiini)

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Abstract
Two species recently described from Taiwan Island, Ammatho shiou Wu & Kishida, 2020 and Aberrasine lichenshihi Wu & Kishida, 2020 are re-characterized due to their genitalia wrongly illustrated in the original paper. A new combination is established: Aberrasine shiou (Wu & Kishida, 2020), comb. nov. 8 colour and 8 black and white diagnostic figures are included.

Key words: Nudariina, the Asura / Miltochrista generic complex, Asia, male genitalia, female genitalia.

Introduction

The genus Aberrasine Volynkin & Huang, 2019 was erected by Volynkin et al. (2019b) with Miltochrista aberrans Butler, 1877 as the type species. The authors included 14 species and one subspecies into the genus. However, two species, A. dentata (Wileman, 1910) and A. marginis (Fang, 1991) were included to the genus erroneously as they belong to the subgenus Striatella Volynkin & Huang, 2019 of the genus Ammatho Walker, 1855 in fact. Wu & Kishida (2020) described three new species of the Asura / Miltochrista generic complex from Taiwan. One of them, A. lichenshihi Wu & Kishida, 2020 was correctly assigned by authors with the genus Aberrasine but instead of its female genitalia those of an unidentified species of the genus Nephelomilta were illustrated and described. Another new species, A. shiou Wu & Kishida, 2020 was erroneously described with the male genital capsule belonging to one of species of the subgenus Striatella of the genus Ammatho, which was a reason of description of the species under the genus Ammatho and not Aberrasine.

In the present paper, I correct all the mistakes listed above: exclude dentata and marginis from Aberrasine, establish a new combination: Aberrasine shiou (Wu & Kishida, 2020), comb. nov., re-characterize the two recently described species comparing them with the closest relatives and provide the corrected checklist of the genus Aberrasine below.
RE-CHARACTERIZATION OF TWO LITHOSIINI SPECIES FROM TAIWAN

Material and methods

The genitalia were dissected, stained with eosin B and mounted in Euparal on glass slides using standard methods of preparation (Lafontaine & Mikkola 1987; Fibiger 1997). Photos of imagoes were taken using a Nikon D3100/AF-S camera equipped with Nikkor, 18–55 mm lens. Genital images were taken by the same camera attached to a microscope with an LM-scope adapter.

Abbreviations for collections used herein: MWM/ZSM = Museum Witt in the Bavarian State Collection of Zoology (Museum Witt München / Zoologische Staatsammlung München, Munich, Germany); NHMUK = Natural History Museum (formerly British Museum of Natural History, London, UK). Other abbreviations used: HT = holotype; PT = paratype.

Systematics

Aberrasine Volynkin & Huang, 2019
Aberrasine Volynkin & Huang, 2019, Ecologica Montenegrina, 26: 67, figs 102, 103, 158, 159, 211.
Type species: Miltochrista aberrans Butler, 1877, by original designation.

Remark. Volynkin et al. (2019b) erroneously included dentata (Wileman, 1910) and marginis (Fang, 1991) to the checklist of the genus Aberrasine while they have been correctly listed under the subgenus Striatella of the genus Ammatho. I hereby exclude these species from the genus Aberrasine.

Checklist of the genus Aberrasine (alphabetically)
- aberrans aberrans (Butler, 1877)
  = askoldensis Oberthür, 1880
  = bivittata Butler, 1885
  = decussata (Moore, 1877)
- aberrans okinawana (Matsumura, 1930)
- attunseensis (Daniel, 1951)
- collina (Černý, 2016)
- dingjiai (Hsu, M.Y. Chen & Buchsbaum, 2018)
- inaequidens (de Joannis, 1928)
- expressa (Inoue, 1988)
- lichensihi Wu & Kishida, 2020
- nigrociiliata (Fang, 1991)
- peraffinis (Fang, 1991)
- separans (de Joannis, 1928)
- shiou (Wu & Kishida, 2020), comb. nov.
  = sinuata (Fang, 1991)
  = strigivenata (Hampson, 1894)
  = variata (Daniel, 1951)

Aberrasine shiou (Wu & Kishida, 2020), comb. nov.
(Figs 1, 2, 9, 13)

Ammatho shiou Wu & Kishida, 2020, Japan Heterocerists’ Journal, 293: 452, figs 4, 5, 12, 17 (Type locality: “Taiwan, Nantou Co., Meifeng, 2,100 m”).

Material examined. TAIWAN: 2 males, Prov. Nantou, 15 km N of Puli, 500 m, 14–15.X.1996, leg. Gy. Fábián & F. Nemes, gen. slide No.: ZSM Arct. 2019-715 (prepared by Volynkin); 5 males, 1 female, Prov. Nantou, 5 km SW of Tayüling, 121'17''E 24'09''N, 2900 m, 21.V.1995, leg. M. Hreblay & P. Steger; 2 males, 1 female, Prov. Nantou, Tungpu, Yu-Shan Nat. Park, 1400 m, 24–25.IV.1997, leg. Gy. Fábián & S.T. Kovács; 2 males, Prov. Nantou, 17 km E of Künsing, 121'00''E – 24'05''N, 560 m, Urean Forest Camping, 6/7.VI.97, lg. C. Szaboky & I. Soos; 2 males, Prov. Nantou, 3 km SW of Tsuifeng, 121'10''E – 24'06''N, 2100 m, 22.V.1995, leg. M. Hreblay & P. Steger; 2 males, 1 female, Prov. Nantou, 3 km SW of Tsuifeng, 2100 m,
Figures 1–8. Aberrasine spp.: adults. Depositories of the specimens: 1, 2, 5 and 6 in MWM/ZSM; 3, 4, 7 and 8 in NHMUK (©).
Figures 9–12. *Aberrasine* spp.: male genitalia. Depositories of the specimens: 9 and 11 in MWM/ZSM; 10 and 12 in NHMUK (©).
Figures 13–16. *Aberrasine* spp.: female genitalia. Depositories of the specimens: 13 and 15 in MWM/ZSM; 14 and 16 in NHMUK (©).
11.X.1995, 121°10'0'E, 24°06'N, leg. Tibor Csővári & Pál Stéger; 1 male, Prov. Nantou, 3 km E of Tili, 120°58'E – 23°47'N, 500 m, 17.III.1996, leg. T. Csóváry & P. Steger; 3 females, Prov. Nantou, 3 km S Hoshe, Yu Shan Nat. Park, 1400 m, 16.X.1996, leg. Gy. Fábián & F. Nemes, gen. slide No.: ZSM Arct. 2019:716 (prepared by Volynkin); 1 male, Prov. Nantou, 2100 m, 121°10'E – 24°06'N, 3 km SW of Tsuifeng, 5.VI.1997, leg. C. Szabóky & I. Soos; 14 males, 1 female, Prov. Kaohsiung, 15 km NE Taoyuan, 1850 m, 07.VII.1996, leg. G. Csorba & L. Németh; 1 male, 1 female, Prov. Kaohsiung, 26 km SE of Taoyiàn, 120°52'E – 23°17'N, 1370 m, 19.III.1996, leg. M. Hreblay & P. Steger; 4 males, Prov. Hualien, 10 km NE of Tiencih, 121°20'E – 24°04'N, 2100 m, 23.V.1995, leg. M. Hreblay & P. Steger; 9 males, Prov. Hualien, 1400 m, Taroko National Park, at the Road 8, 2.IV.1997, leg. Csorba & Ronkay: 7 males, Prov. Taitung, 5 km NW of Lirao, 120°59'E – 23°13'N, 1760 m, 28.V.1995, leg. M. Hreblay & P. Steger; 6 males, 3 females, Prov. Taitung, Amashan, lower forest zone, 1650 m, 20.VI.1997, leg. B. Herczig & L. Ronkay; 1 female, Prov. Taitung, 350 m, 3 km W village Hungye, 30.VI.1997, 120°52'E, 22°28'N, lg. Csóvary & Mikus; 1 male, Prov. Taitung, 2 km N Liyusan, 1760 m, 23.X.1996, leg. Gy. Fábián & L. Nemes; 1 male, Prov. Taitung, Taehuehsan Forest Recreation Area, 2000 m, 25.V.1997, leg. Gy. M. László & G. László; 1 male, Prov. Taichung, 17 km SW Lishan, Tchi Vilà, 1500 m, 26–27.V.1997, leg. Gy. M. László & G. László; 1 male, 1 female, Prov. Taoyuan, 14 km E of Fuhsing, 800 m, 28.X.1995, 121°23'E, 24°50'N, lg. Csóvary & Steger; 1 female, Prov. Taoyuan, Ming Chyr Forest Recreation Area, 1160 m, 17–18.IV.1997, leg. Gy. Fábián & S.T. Kovács; 1 female, Prov. Taoyuan, Ming Chyr Forest Recreation Area, 1160 m, 05–06.X.1996, leg. Gy. Fábián & F. Nemes (MWM/ZSM).

Remarks. (1) In the original male genitalia illustration of A. shiou (Wu & Kishida 2020: fig. 12), the authors erroneously provided a photo of the male genital capsule of Ammatho (Striatella) takamukai (Matsumura, 1927) (illustrated by Volynkin et al. 2019a: figs 188, 189) while the aedeagus illustrated belongs to A. shiou. For this reason, the species was originally described under the subgenus Striatella of the genus Ammatho. (2) For the purpose of a comparison with A. shiou, Wu & Kishida (2020: fig. 13) illustrated the male genitalia of A. takamukai which, however, clearly belong to Ammatho (Striatella) karenensis (Matsumura, 1930) (illustrated by Volynkin et al. 2019a: figs 194, 195) and not A. takamukai.

Diagnosis. A. shiou is very similar externally to the form of A. aberrans lacking a discal spot of the forewing, but can be distinguished by its markedly less curved posterior part of the medial transverse fascia and the somewhat shorter subterminal area of the forewing. The male genitalia of A. shiou are very similar to those of A. expressa (Figs 3, 4, 10, 14) which is easily separable externally by its smaller size and dissimilar forewing markings. Compared to that of A. expressa, the male genital capsule of A. shiou has the somewhat thicker uncus, the slightly shorter vinculum, the broader valva with the more convex costa, the larger distal costal process directed rather dorsally (whereas it is smaller and directed distally in A. expressa), and the more robust distal saccular process. The vesica configuration of A. expressa is unknown, but the smaller cluster of spines is wider and the elongate cluster of spines is conspicuously longer in A. shiou. The female genitalia of A. shiou differ from those of A. expressa by the longer apophyses anteriores, the shorter and narrower ductus bursae, the shorter corpus bursae with the spinulose posterior section (it is evenly weakly sclerotized and lacking spinules in A. expressa), and the somewhat longer appendix bursae more densely covered in larger spinules.

Distribution. The species is endemic to Taiwan Island.

Aberrasine lichenshihi Wu & Kishida, 2020

(Figs 5, 6, 11, 15)

Aberrasine lichenshihi Wu & Kishida, 2020, Japan Heterocerists’ Journal, 293: 454, figs 7, 8, 14, 18 (Type locality: “Taiwan, Taipei Co., Wulai, Fushan, 310 m.”).

Material examined. TAIWAN: 1 male, Prov. Nantou, 10 km SE Shennu, Yushan Nat. Park, 2200m, 14.III.1996, leg. Gy. Fábián & L. Németh, gen. slide No.: ZSM Arct. 2019:719 (prepared by Volynkin); 6 males, 3 females, Prov. Nantou, 3 km SW of Tsuifeng, 2100 m, 31.X.96, (121°10'E, 24°06'N), leg. T. Csóvári & C. Szabóky; 2 males, 2 females, Prov. Nantou, 3 km SW of Tsuifeng, 2100 m, 25/26.VI.1997, 121°10'E, 24°06'N, lg. Csóvári & Mikus; 1 female, Prov. Nantou, Tungpu, Yu-Shan Nat. Park, 1400 m, 24–25.IV.1997, leg. Gy. Fábián & S.T. Kovács; 1 female, Prov., Taipei, 10 km SE of Pinglin, Pihou, 450m, 3.V.1997, leg. Gy. Fábián & S.T. Kovács, gen. slide No.: ZSM Arct. 2019:726 (prepared by Volynkin); 2
males, Prov. Taichung, Tahsuehshan Forest Recreation Area, 2000 m, 25.V.1997, leg. Gy. M. László & G. László; 2 males, Prov. Taichung, Hui Sun Exp. Forest, Guandashi LTER site, 950 m, 24°04′49″, 121°02′08″, 12–13.IV.1997, leg. Peregovits & Kun; 2 males, Prov. Taitung, Mutien, 1500 m, 21.V.1997, leg. Gy. M. László & G. László; 1 male, Prov. Taitung, above Liyuan, 1950 m, upper forest zone, 15.VI.1997, leg. B. Herczig & L. Ronkay; 3 females, Prov. Miaoli, 20 km E of Tungshih, 1335 m, 18.X.95 (121°03′E, 24°19′N), leg. T. Csővári & P. Steger; 1 female, Prov. Taoyuan, 7 km E of Fuhsing, 121°23′E – 24°49′N, 28–29.XI.1997, 600 m, leg. S. Simonyi & A. Szabo; 3 males, Prov. Pingtung, 10 km SE of Mutan, 470 m, 03/04.VII.1996, leg. G. Csorba & L. Németh; 1 female, Prov. Kaohsiung, 26 km SE of Taoyián, 1370 m, 4.XI.96 (120°52′E, 23°17′N), leg. T. Csővári & C. Szaboky; 1 male, Prov. Kaohsiung, 3 km E Chiashen, 460 m, 18.X.1996, leg. Gy. Fábián & F. Nemes; 1 female, Prov. Ilan, 1550 m, Suyuan, near Pinan, at the Road 3/1, 6.VI.1997, leg. B. Herczig & L. Ronkay (MWM/ZSM).

**Remarks.** (1) In the original female genitalia illustration of *A. lichenshihi* (Wu & Kishida 2020: fig. 18), the authors erroneously provided a photo of an unidentified species of the genus *Nephelomilta* Hampson, 1900 most similar to *Nephelomilta karenkonis* (illustrated by Volynkin & Černý 2018: fig. 140). (2) In the original diagnosis (Wu & Kishida 2020), the species was compared with the genitally rather dissimilar *A. aberrans* and not the closely related *A. dingjiai* (Figs 7, 8, 12, 16) described recently from Lanyu Island (Hsu et al. 2018). The comparison with the latter is provided below.

**Diagnosis.** *Aberrasine lichenshihi* is similar externally to *A. aberrans* (illustrated by Volynkin et al. 2019b and Wu & Kishida 2020) and *A. peraffinis* (illustrated by Volynkin 2018), but differs from the former one by its slightly more reddish forewing coloration and the posterior part of the medial line curved closer to the antemedial line (in *A. aberrans*, the area between the lines is markedly wider), and from the latter one by the antemedial line more strongly angular in the cell and the sinuous medial line (it is nearly straight in *A. peraffinis*). The male genitalia of *A. lichenshihi* are very similar to those of *A. dingjiai* which has clearly different forewing pattern. The male genital capsule of *A. lichenshihi* differs from that of *A. dingjiai* by the longer and wider distal section of costa which is more strongly curved dorsad, and the somewhat larger ventral plate of the costa. The aedeagus of *A. lichenshihi* is conspicuously smaller than that of *A. dingjiai*. Compared to that of *A. dingjiai*, the vesica of *A. lichenshihi* is narrower and slightly shorter, the elongate cluster consists of thinner but more numerous spines, and the smaller cluster of spines is wider. In the female genitalia of *A. lichenshihi*, the ductus bursae is wider and somewhat narrower, the corpus bursae is longer and the sclerotized area of its posterior end is wider than in *A. dingjiai*. Additionally, the appendix bursae of *A. lichenshihi* is slightly longer than in *A. dingjiai* and covered in more numerous but smaller spinules.

**Distribution.** The species is endemic to Taiwan Island.

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**References**

Fibiger, M. (1997). *Noctuinae III. Noctuidae Europaeae. Volume 3*. Entomological Press, Soro, 418 pp.

Hsu, L.P., Chen, M.Y. & Buchsbaum, U. (2018) *Barsine dingjiai* sp. n. from Lanyu Island (Taiwan) (Insecta, Lepidoptera: Erebidae, Arctiinae, Lithosiini). *Mitteilungen der Münchner Entomologischen Gesellschaft*, 108, 9–15.

Lafontaine, J.D. & Mikkola, K. (1987) Lock-and-key system in the inner genitalia of Noctuidae (Lepidoptera) as taxonomic character. *Entomologiske Meddelelser*, 55, 161–167. [in Finnish]

Volynkin, A.V. (2018) Four new species of the genus *Barsine* Walker, 1854 (Lepidoptera: Erebidae, Arctiinae) from Oriental Region. *Far Eastern Entomologist*, 358, 1–18. https://doi.org/10.25221/fee.358.1

Volynkin, A.V. & Černý, K. (2018) Revision of the genus *Nephelomilta* Hampson, 1900, with descriptions of twelve new species and two new subspecies (Lepidoptera, Erebidae, Arctiinae). *Zootaxa*, 4472 (3), 401–451. https://doi.org/10.11646/zootaxa.4472.3.1

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Volynkin, A.V., Černý, K. & Huang, S.Y. (2019) A review of the Barsine hypoprepioides (Walker, 1862) species-group, with descriptions of fifteen new species and a new subspecies (Lepidoptera, Erebidae, Arctiinae). *Zootaxa*, 4618 (1), 1–82. https://doi.org/10.11646/zootaxa.4618.1.1

Volynkin, A.V., Huang, S.Y. & Ivanova, M.S. (2019b) An overview of genera and subgenera of the *Asural/Miltochrista* generic complex (Lepidoptera, Erebidae, Arctiinae). Part 1. *Barsine* Walker, 1854 sensu lato, *Asura* Walker, 1854 and related genera, with descriptions of twenty new genera, ten new subgenera and a check list of taxa of the *Asural/Miltochrista* generic complex. *Ecologica Montenegrina*, 26, 14–92. https://doi.org/10.37828/em.2019.26.3

Wu, Sh. & Kishida, Y. (2020) Descriptions of three new species of the *Miltochrista* generic complex in Taiwan (Lepidoptera: Erebidae: Arctiinae). *Japan Heterocerist's Journal*, 293, 450–456.