

A CHECKLIST OF THE FAMILY LAUXANIIDAE (DIPTERA, LAUXANIOIDEA) IN VIETNAM, MAINLY WITH THE SUBFAMILY LAUXANIINAE

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Abstract

I reviewed the lauxaniid literature as many as possible and listed any lauxaniid species with Vietnamese records. In this paper, I provided a taxonomic checklist of 41 nominal species under two subfamilies Homoneurinae and Lauxaniinae. In total, the number of lauxaniid species in Vietnam became 101 species belong to 21 genera. The Homoneurinae consists of 6 genera and 63 species. The Lauxaniinae includes 15 genera and 38 species. These two checklists will be the fundamental base for comprehensive taxonomic research of lauxaniid fauna in Vietnam.

Keywords: *Diptera*; Checklist; Lauxaniidae; Lauxaniinae; Vietnam.

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DANH LỤC CÁC LOÀI THUỘC HỌ LAUXANIIDAE (DIPTERA, LAUXANIOIDEA) TẠI VIỆT NAM, CHỦ YẾU THUỘC PHÂN HỌ LAUXANIINAE

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Tóm tắt

Dựa trên các tài liệu, danh lục các loài thuộc họ Lauxaniidae ở Việt Nam đã được thống kê, bài báo này cung cấp danh lục bao gồm 41 loài đã được định danh thuộc hai phân họ là Homoneurinae và Lauxaniinae. Tổng cộng, số lượng loài thuộc họ Lauxaniidae ở Việt Nam gồm 101 loài thuộc 21 giống. Trong đó, phân họ Homoneurinae gồm 63 loài thuộc 6 giống và phân họ Lauxaniinae gồm 38 loài thuộc 15 giống. Hai danh lục này là cơ sở cho những nghiên cứu sâu hơn về khu hệ họ Lauxaniidae ở Việt Nam.

Từ khóa: Danh lục; *Diptera*; *Lauxaniidae*; *Lauxaniinae*; Việt Nam.

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1. INTRODUCTION

There is no intensive taxonomic research about lauxaniid fauna in Vietnam except for Sasakawa (2001). Lee (2016) listed the Homoneurinae species previously recorded in Vietnam. Total 60 species under Homoneurinae was listed in that checklist. In this checklist, the author listed 16 genera, 41 species under 2 subfamilies based on the lauxaniid literature with Vietnamese records. Lee (2016) also provided the Homoneurinae checklist except for the genus *Noonamyia*. This genus has an ambiguous position in the classification of Lauxaniidae. Some researchers ranked this genus in the subfamily Lauxaniinae, whereas others moved this genus to the subfamily Homoneurinae. A systematic position of this genus is not verified clearly. In this checklist, I followed the classification by Sasakawa (1995).

The Homoneurinae consists of six genera and 63 species. The Lauxaniinae includes 15 genera and 38 species. The number of lauxaniid species in Vietnam became 101 species belong to 21 genera under two subfamilies in total. This diversity is just a small part of entire lauxaniid diversity in Vietnam. I am sure about their high diversity based on collecting experience until now. I will discover lauxaniid diversity as many as possible in Vietnam. This checklist will be the fundamental base for comprehensive taxonomic research of lauxaniid fauna in Vietnam.

2. RESULTS

2.1. Subfamily Homoneurinae - Tribe Noonamyiini Sasakawa, 1995

Genus *Noonamyia* Stuckengerg, 1971

TS: *Noonamyia palawanensis* Stuckenberg, 1971.

1. *Noonamyia euphlebia* Sasakawa (1990, p. 131). TL: Malaysia, Negeri Sembilan, Pasoh Forest Reserve.

Vietnamese records: *Noonamyia euphlebia*: Sasakawa (1995, p. 153, distribution, new to Laos, Thailand, Vietnam); Sasakawa (2003, p. 63, distribution); Shi and Yang (2009, p. 40, distribution).

Distribution: Laos, Malaysia, Thailand, Vietnam.

2. *Noonamyia flavoscutellata* Shi, Yang, and Gaimari (2011, p. 684). TL: China, Guangxi Province, Jinxiu, Dayao Mountain, Yinshan, 1000m.

Vietnamese records: *Noonamyia flavoscutellata*; Shi et al. (2011, p. 684, description, diagnosis, distribution, key to species, male genitalic figure, remarks, wing photo).

Distribution: China (Guangxi), Thailand, Vietnam.

3. *Noonamyia sasakawai* Papp (2006, p. 185). TL: Thailand, Doi Pui.

Vietnamese records: *Noonamyia sasakawai*; Shi et al. (2011, p. 687, description, diagnosis, distribution, habitus photo, key to species, male genitalic figure, new to Vietnam, remarks); Lee et al. (2016, p. 44, description, distribution, habitus photo).

Distribution: Thailand, Vietnam.

2.2. Subfamily Lauxaniinae

Genus *Cerataulina* Hendel, 1907

TS: *Cerataulina longicornis* Hendel, 1907.

4. *Cerataulina nigrifrons* Malloch (1927a, p. 102). TL: Indonesia, Sumatra, Bukittinggi.

Vietnamese records: *Cerataulina nigrifrons*; Sasakawa (2001, p. 41, diagnosis, distribution, male genitalic figure, new to Vietnam).

Distribution: Indonesia, Vietnam.

Genus *Chaetolauxania* Kertész, 1915

TS: *Chaetolauxania sternopleuralis* Kertész, 1915.

5. *Chaetolauxania platystylis* Sasakawa (2001, p. 42). TL: Vietnam, Laocai province, Sapa.

Vietnamese records: *Chaetolauxania platystylis*; Sasakawa (2001, p. 42, discussion, distribution, male genitalic figure).

Distribution: Vietnam.

Genus *Melanopachycerina* Malloch, 1927

TS: *Pachycerina leucochaeta* Meijere, 1914.

6. *Melanopachycerina leucochaeta* (Meijere, 1914, p. 236 (*Pachycerina*)). TL: Indonesia, Java, Nongkodjadjar.

Vietnamese records: *Melanopachycerina leucochaeta*; Sasakawa (2001, p. 40, diagnosis, distribution, new to Vietnam).

Distribution: Indonesia, Vietnam.

Genus *Melinomyia* Kertész, 1915

TS: *Melinomyia flava* Kertész, 1915.

7. *Melinomyia flava* Kertész (1915, p. 500). TL: Taiwan, Kosempo.

Vietnamese records: *Melinomyia flava*; Sasakawa (2001, p. 43, distribution, new to Vietnam).

Distribution: China (Taiwan), Japan, South Korea, Vietnam.

Genus *Minettia* Robineau-Desvoidy, 1830

TS: *Minettia nemorosa* Robineau-Desvoidy, 1830 [= *fasciata* (Fallén, 1826)].

8. *Minettia (Frendelia) fuscofasciata* (Meijere, 1910, p. 125 (*Lauxania*)). TL: Indonesia, Java, Gunung Salak, near Bogor.

Vietnamese records: *Minettia (Frendelia) fuscofasciata*; Sasakawa (2001, p. 43, diagnosis, distribution, in Vietnamese key, male genitalic figure, new to Vietnam).

Distribution: China (Taiwan), Indonesia, Vietnam.

9. *Minettia (Frendelia) quadrispinosa* Malloch (1927b, p. 166). TL: Taiwan, Tsui Kutsu.

Vietnamese records: *Minettia (Frendelia) quadrispinosa*; Sasakawa (2001, p. 43, diagnosis, distribution, in Vietnamese key, new to Vietnam); Lee et al. (2016, p. 42, description, distribution, habitus photo).

Distribution: China (Taiwan), Vietnam.

10. *Minettia (Frendelia) rufiventris* (Macquart, 1848, p. 228 (*Lauxania*)). TL: Indonesia, Java.

Vietnamese records: *Minettia (Frendelia) rufiventris*; Sasakawa (2001, p. 43, diagnosis, distribution, in Vietnamese key, male genitalic figure, new to Vietnam); Sasakawa (2003, p. 61, distribution, new to Laos).

Distribution: China (Taiwan), India, Indonesia, Laos, Philippines, Vietnam.

11. *Minettia (Minettia) imparispinosa* Sasakawa (2001, p. 45). TL: Vietnam, Lamdong province, Fyan.

Vietnamese records: *Minettia (Minettia) imparispinosa*; Sasakawa (2001, p. 43, diagnosis, distribution, in Vietnamese key, male genitalic figure).

Distribution: Vietnam.

12. *Minettia (Minettiella) atrata* (Meijere, 1910, p. 127 (*Lauxania*)). TL: Indonesia, Java, Pangerango.

Vietnamese records: *Minettiella atrata*; Shatalkin (1996, p. 147, key to species, distribution).

Distribution: Indonesia (Java), Malaysia, Vietnam.

13. *Minettia (Minettiella) atratula* (Meijere, 1924a, p. 49 (*Lauxania*)). TL: Indonesia, Sumatra, Gunung Talaman.

Vietnamese records: *Minettia (Minettiella) atratula*; Shi and Yang (2014, p. 83, diagnosis, distribution, redescription, male and female genitalic figure); *Minettiella atratula*; Shatalkin (1996, p. 147, key to species, distribution).

Distribution: China (Hainan, Taiwan), Indonesia (Sumatra), Vietnam.

14. *Minettia (Minettiella) sasakawai* Shi, Wang, and Yang (2011, p. 81). TL: Vietnam, Lamdong province, Fyan.

Vietnamese records: *Sapromyza (Sapromyza) acrostichalis*; Sasakawa (2001, p. 46, discussion, distribution, male genitalic figure); Sasakawa (2008, p. 44, in Oriental key, distribution); *Minettia (Minettiella) sasakawai*; Shi et al. (2011, p. 81, nom. nov. remarks, distribution, wing photo, male and female genitalic figure); Shi and Yang (2014, p. 92, diagnosis, distribution, redescription, remarks); Lee et al. (2016, p. 43, description, distribution, habitus photo).

Distribution: China (Hainan), Vietnam.

Genus *Pachycerina* Macquart, 1835

TS: *Lauxania seticornis* Fallén, 1820.

15. *Pachycerina decemlineata* Meijere (1914, p. 236). TL: Indonesia, Java, Nongkodjadjar.

Vietnamese records: *Pachycerina decemlineata*; Sasakawa (2001, p. 40, diagnosis, distribution, new to Vietnam); Sasakawa (2003, p. 58, distribution, new to Laos).

Distribution: China (Taiwan), Indonesia, Laos, Nepal, Vietnam.

16. *Pachycerina flaviventris* Malloch (1929, p. 20). TL: Philippines, Luzon, Laguna, Mt. Makiling.

Vietnamese records: *Pachycerina flaviventris*; Sasakawa (2001, p. 40, diagnosis, distribution, male genitalic figure, new to Vietnam); Shi, Wu and Yang (2009, p. 504, description, diagnosis, distribution, habitus photo, in Chinese key, male genitalic figure); Lee et al. (2016, p. 46, description, distribution, habitus photo).

Distribution: China (Yunnan, Sichuan, Guizhou, Guangdong), Philippines (Luzon), Vietnam.

17. *Pachycerina javana* (Macquart, 1851, p. 247 (*Sapromyza*)). TL: Indonesia, Java.

Vietnamese records: *Pachycerina javana*; Lee et al. (2016, p. 45, description, distribution, habitus photo, new to Vietnam).

Distribution: China (Iiubei, Iiunan, Yunnan, Sichuan, Guizhou, Hainan, Taiwan), India (Assam), Japan (Ryukyus Islands), Indonesia (Java), Nepal, Philippines (Luzon), Malaysia (Sunda Islands), Sri Lanka, Vietnam.

Genus *Parapachycerina* Stuckenberg, 1971

TS: *Parapachycerina munroi* Stuckenberg, 1971.

18. *Parapachycerina cuneifera* (Kertész, 1913, p. 96 (*Lauxania*)). TL: Taiwan, Kosempo.

Vietnamese records: *Parapachycerina cuneifera*; Sasakawa (2001, p. 41, diagnosis, distribution, male genitalic figure, new to Vietnam).

Distribution: China (Taiwan), Vietnam.

Genus *Sapromyza* Fallén, 1810

TS: *Musca flava* Linnaeus, 1758 (a misidentification of *Sapromyza obsoleta* Fallén, 1820).

19. *Sapromyza* (*Notiosapromyza*) *longimentula* Sasakawa (2001, p. 47). TL: Vietnam, Lamdong province, Fyan.

Vietnamese records: *Sapromyza* (*Notiosapromyza*) *longimentula*; Sasakawa (2001, p. 46, diagnosis, distribution, in Vietnamese key, male genitalic figure); Sasakawa (2008, p. 43, in Oriental key, distribution); Shi, Li and Yang (2012, p. 186, diagnosis, habitus photo, remarks, distribution, new to China).

Distribution: China (Hainan), Vietnam.

20. *Sapromyza* (*Notiosapromyza*) *pellopleura* Sasakawa (2001, p. 48). TL: Vietnam, Lamdong province, Dalat, Mt. Lang Biang.

Vietnamese records: *Sapromyza (Notiosapromyza) pellopleura*; Sasakawa (2001, p. 46, discussion, distribution, in Vietnamese key); Sasakawa (2008, p. 43, in Oriental key, distribution).

Distribution: Vietnam.

21. *Sapromyza (Notiosapromyza) quadridentata* Sasakawa (2001, p. 49). TL: Vietnam, Lamdong province, Dalat, Mt. Lang Biang.

Vietnamese records: *Sapromyza (Notiosapromyza) quadridentata*; Sasakawa (2001, p. 46, diagnosis, distribution, in Vietnamese key, male genitalic figure); Sasakawa (2008, p. 43, in Oriental key, distribution).

Distribution: Vietnam.

22. *Sapromyza (Sapromyza) ctenophora* Sasakawa (2001, p. 51). TL: Vietnam, Lamdong province, Fyan.

Vietnamese records: *Sapromyza (Sapromyza) ctenophora*; Sasakawa (2001, p. 46, discussion, distribution, in Vietnamese key, male genitalic figure); Sasakawa (2008, p. 44, in Oriental key, distribution).

Distribution: Vietnam.

23. *Sapromyza (Sapromyza) septemnotata* Sasakawa (2001, p. 53). TL: Vietnam, Laocai province, Sapa.

Vietnamese records: *Sapromyza (Sapromyza) septemnotata*; Sasakawa (2001, p. 46, discussion, distribution, in Vietnamese key, male genitalic figure, remarks); Sasakawa (2008, p. 45, in Oriental key, distribution); Shi et al. (2012, p. 186, diagnosis, distribution, habitus photo, in Chinese key, new to China).

Distribution: China (Yunnan, Hainan), Vietnam.

24. *Sapromyza (Sapromyza) sexmaculata* Sasakawa (2001, p. 52). TL: Vietnam, Vinhphuc province, Tamdao.

Vietnamese records: *Sapromyza (Sapromyza) sexmaculata*; Sasakawa (2001, p. 46, diagnosis, distribution, in Vietnamese key, male genitalic figure); Sasakawa (2003, p. 63, distribution, new to Laos); Sasakawa (2008, p. 45, in Oriental key, distribution); Shi et al. (2012, p. 186, diagnosis, distribution, habitus photo, in Chinese key, new to China).

Distribution: China (Zhejiang, Hainan), Laos, Vietnam.

25. *Sapromyza (Xenosapromyza) cinctipes* (Meijere, 1910, p.125 (*Lauxania (Sapromyza)*)). TL:Indonesia, Java, Depok.

Vietnamese records: *Sapromyza (Xenosapromyza) cinctipes*; Sasakawa (2001, p. 46, distribution, in Vietnamese key, new to Vietnam).

Distribution: Indonesia, Vietnam.

Genus *Sciasmomyia* Hendel, 1907

TS: *Sciasmomyia meijerei* Hendel, 1907.

26. *Sciasmomyia meijerei* Hendel (1907, p. 234). TL: Vietnam, Tonkin.

Vietnamese records: *Sciasmomyia meijerei*; Hendel (1907, p. 234, description); Hendel (1908, p. 18, list, figure of head and wing); Shewell (1977, p. 193, in Oriental Catalog); Sasakawa (2001, p. 39, previously known species in Vietnam); Shi, Gaimari, and Yang (2013, p. 420, description, diagnosis, habitus photo, key to species, male and female genitalic figure, new to China, remarks); *Sciasmomyia demeijeri*; Hendel (1925, p. 107, Misspelling, in key).

Distribution: China (Fujian, Jiangxi, Zhejiang), Vietnam.

27. *Sciasmomyia thaii* Shi et al. (2013, p. 428). TL: Vietnam, Vinhphuc province, Tamdao National park.

Vietnamese records: *Sciasmomyia thaii*; Shi et al. (2013, p. 428, description, diagnosis, distribution, habitus photo, key to species, male and female genitalic figure, remarks).

Distribution: Vietnam.

Genus *Steganopsis* Meijere, 1910

TS: *Steganopsis pupicola* Meijere, 1910.

28. *Steganopsis japonica* Sasakawa (1998, p. 68). TL: Japan, Ryukyu Islands, Kainan, Ishigaki Island.

Vietnamese records: *Steganopsis japonica*; Shatalkin (2000, p. 38, in Palaearctic key, distribution); Schacht, Kurina, Merz and Gaimari (2004, p. 58, English translation of Shatalkin, 2000, p. 38); Lee et al. (2016, p. 47, description, distribution, habitus photo).

Distribution: Japan, Vietnam.

29. *Steganopsis pupicola* Meijere (1910, p. 146). TL: Indonesia, Java, Jakarta.

Vietnamese records: *Steganopsis pupicola*; Sasakawa (2001, p. 39, distribution, new to Vietnam).

Distribution: Indonesia, Sri Lanka, Vietnam.

2.3. Tribe Trigonometopini Becker, 1905

According to Papp (2007), the tribe Trigonometopini consists of 10 genera in the world. In Vietnam, following 4 genera are recorded: *Luzonomyza*, *Protrigonometopus*, *Shatalkinella* and *Tetroxyrhina*.

Genus *Luzonomyza* Malloch, 1929

TS: *Trigonometopus bakeri* Bezzi, 1913.

30. *Luzonomyza sasakawai* Papp (2007, p. 137). TL: Vietnam, Cucphuong, Ninhbinh province.

Vietnamese records: *Luzonomyza sasakawai*; Papp (2007, p. 137, description, head photo, key to species, remarks).

Distribution: Thailand, Vietnam.

31. *Luzonomyza vietnamensis* Papp (2007, p. 139). TL: Vietnam, Hatinh province, Huongson.

Vietnamese records: *Luzonomyza vietnamensis*; Papp (2007, p.139, description, head photo, key to species, remarks).

Distribution: Vietnam.

Genus *Protrigonometopus* Hendel, 1938

TS: *Protrigonometopus maculifrons* Hendel, 1938.

32. *Protrigonometopus maculifrons* Hendel (1938, p. 3). TL: China, Jiangsu.

Vietnamese records: *Protrigonometopus maculifrons*; Sasakawa (2001, p. 43, distribution, new to Vietnam).

Distribution: China (Jiangsu), Japan, Korea, Vietnam.

33. *Protrigonometopus ornatus* Papp (2007, p. 146). TL: Vietnam, Sin Chai.

Vietnamese records: *Protrigonometopus ornatus*; Papp (2007, p. 146, key to species, male genitalic figure).

Distribution: Vietnam.

Genus *Shatalkinella* Papp, 2007

TS: *Shatalkinella marginata* Papp, 2007.

34. *Shatalkinella deceptor* (Malloch, 1927b, p. 167 (*Sapromyza*)). TL: Taiwan, Hokutu.

Vietnamese records: *Protrigonometopus deceptor*; Shatalkin (1997, p. 167, diagnosis, new to Vietnam); *Shatalkinella deceptor*; Papp (2007, p.1 58, key to species).

Distribution: China (Taiwan), Vietnam.

Genus *Tetroxyrhina* Hendel, 1938

TS: *Trigonometopus submaculipennis* Malloch, 1927.

35. *Tetroxyrhina brunneicosta* (Malloch, 1927b, p. 165 (*Trigonometopus*)). TL: Taiwan, Taitung County, Dawu Township (as Formosa: Paiwan District, Paroe).

Vietnamese records: *Tetroxyrhina brunneicosta*; Papp (2007, p. 160, new combination, examined material information); Shi, Gaimari and Yang (2017, p. 248, distribution, key to species, habitus and wing photo of holotype).

Distribution: China (Taiwan), Japan (Ryukyu Islands), Malaysia, Vietnam.

36. *Tetroxyrhina cuneata* (Shatalkin, 1997, p.165 (*Trigonometopus cuneatus*)). TL: Vietnam, Vinhphuc province, Tamdao.

Vietnamese records: *Luzonomyza (Tetroxyrhina) cuneatus*; Shatalkin (2000, p. 39, in Palaearctic key, distribution); Schacht et al. (2004, p. 59, English translation of Shatalkin, 2000, p. 39); *Trigonometopus (Tetroxyrhina) cuneatus*; Shatalkin (1997, p. 165, diagnosis); *Tetroxyrhina cuneata*; Shi et al. (2017, p. 248, distribution, key to species, habitus photo of holotype).

Distribution: China, Vietnam.

37. *Tetroxyrhina sauteri* (Hendel, 1912, p. 19 (*Trigonometopus*)). TL: Taiwan, Nantou County, Chi-Chi (as Formosa: Chip-Chip).

Vietnamese records: *Trigonometopus (Tetroxyrhina) alboapicalis*; Shatalkin (1997, p. 164, key to species, diagnosis); *Tetroxyrhina sauteri*; Shi et al. (2017, p. 248,

key to species, diagnosis, redescription, male genitalic figure, distribution, habitus and wing photo of holotype).

Distribution: China (Yunnan, Zhejiang, Hainan, Taiwan), Thailand, Vietnam.

38. *Tetroxyrhina submaculipennis* (Malloch, 1927b, p. 164 (*Trigonometopus*)). TL: Taiwan, Taipei (as Formosa: Taihoku).

Vietnamese records: *Trigonometopus (Tetroxyrhina) submaculipennis*; Shatalkin (1997, p. 164, key to species, distribution); Sasakawa (2003, p. 61, distribution, new to Laos); *Luzonomyza (Tetroxyrhina) submaculipennis*; Shatalkin (2000, p. 39, in Palaearctic key, distribution); Schacht et al. (2004, p. 59, English translation of Shatalkin, 2000, p. 39); *Tetroxyrhina submaculipennis*; Shi et al. (2017, p. 248, distribution, key to species, habitus and wing photo of holotype).

Distribution: China (Gansu, Taiwan), Laos, Nepal, Vietnam.

39. *Tetroxyrhina tinctipennis* (Meijere, 1924b, p. 211 (*Trigonometopus*)). TL: Indonesia, Java.

Vietnamese records: *Tetroxyrhina tinctipennis*; Shi et al. (2017, p. 248, distribution, key to species, habitus photo of syntype); *Trigonometopus (Tetroxyrhina) tinctipennis*; Sasakawa (2001, p. 39, previously known species in Vietnam).

Distribution: Indonesia (Java), Malaysia, Vietnam.

Genus *Xangelina* Walker, 1856

TS: *Xangelina basigutta* Walker, 1856.

40. *Xangelina basigutta* Walker (1856b, p. 32). TL: Malaysia, Malacca.

Vietnamese records: *Xangelina basigutta*; Lee et al. (2016, p.48, description, distribution, habitus photo, new to Vietnam).

Distribution: Laos, Malaysia, Vietnam.

41. *Xangelina heteroloba* Sasakawa (2003, p. 60). TL: Laos, Vientiane province, Banvaneue, Phoukou Khouei.

Vietnamese records: *Xangelina heteroloba*; Lee et al. (2016, p. 49, description, distribution, habitus photo, new to Vietnam).

Distribution: Laos, Vietnam.

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