

## Specimen Database AIIC, Asian Insect Information Center Database, Based on Types and Normal Specimens Collected in Asia and the Pacific Area, Part 1

Tadauchi, Osamu  
Entomological Laboratory, Faculty of Agriculture, Kyushu University

Hirosawa, Chizuru  
Entomological Laboratory, Faculty of Agriculture, Kyushu University

Inoue, Hitoshi  
Research Institute for Information Technology, Kyushu University

Sugimoto, Takayuki  
Entomological Laboratory, Faculty of Agriculture, Kyushu University

他

<https://doi.org/10.5109/16143>

---

出版情報 : ESAKIA. 49, pp.1-5, 2009-12-21. Entomological Laboratory, Faculty of Agriculture,  
Kyushu University  
バージョン :  
権利関係 :



## Specimen Database AIIC, Asian Insect Information Center Database, Based on Types and Normal Specimens Collected in Asia and the Pacific Area, Part 1

Osamu TADAUCHI<sup>1)</sup>, Chizuru HIROSAWA<sup>1)</sup>, Hitoshi INOUE<sup>3)</sup>,  
Takayuki SUGIMOTO<sup>1)</sup>, Ryuki MURAO<sup>1),2)</sup>, Naoki TAKAHASHI<sup>1), 2)</sup>,  
Shinsuke SATO<sup>1)</sup>, Katsushi MITAI<sup>2)</sup> and Yasuo HARA<sup>3)</sup>

1) Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka,  
812-8581 Japan

2) The Kyushu University Museum, Fukuoka, 812-8581 Japan

3) Research Institute for Information Technology, Kyushu University, Fukuoka,  
812-8581 Japan

**Abstract.** A new database, AIIC, the Asian Insect Information Center database, was constructed and is available to the public via the Internet. The aim of this database is the accumulation of insect data involving types and normal specimens deposited in universities, institutions and museums in Japan. Each record consists of scientific names (family, genus and species), locality, collecting date, collector, etc, according to a format of the Darwin Core of the Global Biodiversity Information Facility (GBIF). In this paper, we present each home page of six files currently constructed, ELKUType, BeeELKU, BeeFukuda, BeeCAsia, BeeFTadauchi and COLSasaji, as well as the top page of AIIC. The database is administered by a SIGMA management system and can be accessed by visiting the following URL: <http://aiic.jp/>

**Key words:** bioinformatics, Asian Insect Information, AIIC database, bees, Coleoptera, ELKUType, BeeELKU, BeeFukuda, BeeCAsia, BeeFTadauchi, COLSasaji, SIGMA.

As the population explosion continues in the world, we are much in need of increased provisions world wide. For the purpose of a stable supply of food or agricultural produce, it is necessary to control pests and plant diseases, and expand utilization of useful insects. In view of the current situation, however, we must admit that it is considerably late for the systematization and network construction of insect species information. Furthermore, the vast number of insect species, especially in tropical areas, has retarded the development of studies in applied entomology. The number of insect species, known presently in the world, about one million, represents only a small percentage of the actual number. The greater number of insect species will be found mainly from tropical areas in the future. In Japan, we constructed a database of "A Check List of Japanese Insects" (1989, 1990)

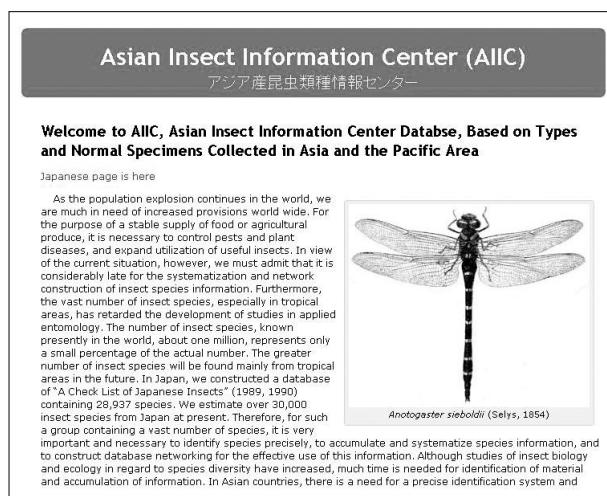


Fig. 1. A home page of a database AIIC in English version.

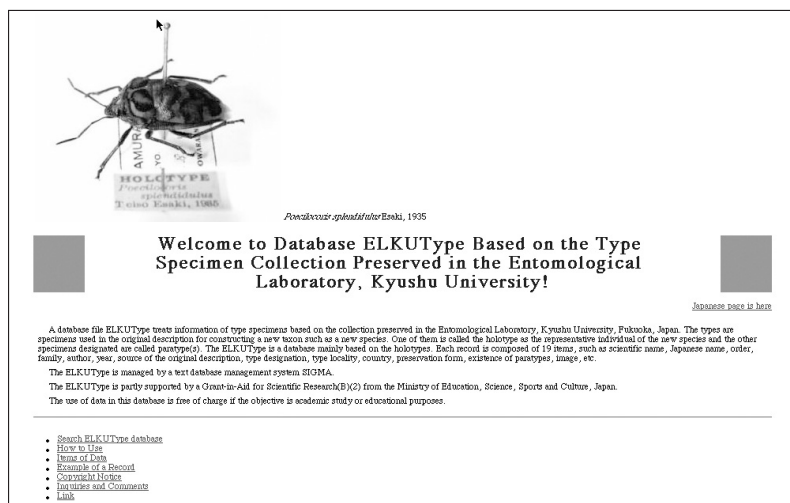


Fig. 2. A home page of a type specimen database file ELKUType in the AIIC in English version.

containing 28,937 species. We estimate over 30,000 insect species from Japan at present. Therefore, for such a group containing a vast number of species, it is very important and necessary to identify species precisely, to accumulate and systematize species information, and to construct database networking for the effective use of this information. Although studies of insect biology and ecology in regard to species diversity have increased, much time is needed for identification of material and accumulation of information. In Asian countries, there is a need for a precise identification system and accumulation of information on pests for the development of agriculture.

We have accumulated insect data individually in each university, institution and museum in Japan. For instance, we have constructed the entomology database KONCHU containing seven main files, KONCHUR, MOKUROKU, DJI, HANABACHI, TOBIKOBACHI, ELKUType and TABR, established in 1983 at the Computer Center of Kyushu University (presently: Research Institute for Information Technology, Kyushu University) and have opened the database to the public via the Internet using servers of the Entomological Laboratory (Tadauchi, 1987, 1994; Tadauchi *et al.*, 1999, 2001, 2003, 2007; Tadauchi & Inoue, 2000a, b, ).

In the present project we have started to construct a new AIIC database, the Asian Insect Information Center database. Its aim is the accumulation of insect data involving types and normal specimens deposited in universities, institutions and museums in Japan. The types and normal specimens have been collected from various localities by many overseas projects in Asia and the Pacific area, as well as inland Japan.

As a first step, we produced six insect database files for the AIIC database, ELKUType, BeeELKU, BeeFukuda, BeeCAsia, BeeFTadauchi, and COLSasaji, based on the Kyushu University Collection and have opened this database to the public via the Internet. We will open various files of other universities, institutions and museums to the public via the Internet in the near future. Each record consists of scientific names (family, genus and species), locality, collecting date, collector, etc, according to a format of the Darwin Core of the Global Biodiversity Information Facility (GBIF).

In this paper, we present each home page of the above six files currently constructed in the AIIC database as well as the top page of AIIC and an example of a search of the AIIC file. The database is administered by a SIGMA management system and can be accessed by visiting the following URL: <http://aiic.jp/>

The database ELKUType is a type specimen database based on the type specimen collection preserved in the Entomological Laboratory, Kyushu University.

The database BeeELKU is a specimen database based on the bee collection preserved in the Entomological Laboratory, Kyushu University, except for Prof. Tadauchi's foreign collections. Three professors of the laboratory, the late Prof. Keizo Yasumatsu, Prof. Yoshihiro Hirashima and Prof. Osamu Tadauchi have studied bees and accumulated many specimens of bees in the laboratory. The total number of specimens at present is 11,449 (September 20, 2009).

The database BeeCAsia is a specimen database based on the bee collection collected in Central Asia by the Kyushu University Expedition (Head Investigator: O. Tadauchi). The expedition was conducted in Kazakhstan,



Fig. 3. A home page of a specimen database file BeeELKU in the AIIC in English version.



Fig. 4. A home page of a specimen database file BeeCAsia in the AIIC in English version.

Kyrgyzstan and Xinjiang Uygur, China from 2000 to 2004. The total number of specimens at present is 21,495 (September 20, 2009).

The database BeeFukuda is a specimen database based on the bee collection mainly collected in Hokkaido, Japan by Dr. Hiromi Fukuda. The collection was donated to the Entomological Laboratory, Kyushu University. Dr. Fukuda studied in Hokkaido University with the late Dr. Shoichi F. Sakagami and constructed a vast collection. His collection will be of great important for faunal change related to global warming in the future. The total number of specimens at present is 49,671 (September 20, 2009).

The database BeeFTadauchi is a specimen database based on the bee collection collected in foreign countries, except for Central Asia, by Prof. Osamu Tadauchi. The countries include Korea, China, Thailand, Indonesia, Bangladesh, Iran and those of Europe (Austria, Germany, Netherlands, Switzerland, Lichtenstein, Spain, Portugal, etc). The total number of specimens at present is 6,023 (September 20, 2009).

The database COLSasaji is a specimen database based on the Coleoptera collection of the late Dr. Hiroyuki Sasaji. The collection was donated to the Kyushu University Museum. Dr. Sasaji mainly studied Coccinellidae and constructed a vast collection of beetles. The total number of specimens at present is 49,469 (late of September, 2009).

Each record is composed of 18-20 items selected from the Darwin Core format of the GBIF.

Data and tags are the following 18 items except for type specimen database.

1. (BOX) Box

2. (DATE) Date Last Modified
3. (INST) Institution Code
4. (COLC) Collection Code
5. (NAME) Scientific Name
6. (BR) Basis of Record
7. (KING) Kingdom
8. (PHY) Phylum
9. (CL) Class
10. (OR) Order
11. (FAM) Family
12. (GEN) Genus
13. (SP) Species
14. (AU) Scientific Name Author
15. (COL) Collector
16. (COLD) Collecting Date
17. (LOC) Locality
18. (REL) Relation Type (associated plants)

The data sample is as follows:

Image	01
Box	1
Date Last Modified	2010. 02. 28
Institution Code	ELKU
CollectionCode	BEE ELKU
Scientific Name	Andrena (Stenomelissa) halictoides
Basis of Record	S
Kingdom	Animalia
Phylum	Arthropoda
Class	Insecta
Order	Hymenoptera
Family	Andrenidae
Genus	Andrena





Fig. 5. A home page of a specimen database file BeeFukuda in the AIIC in English version.



Fig. 6. A home page of a specimen database file BeeFTadauchi in the AIIC in English version.

## Species

Scientific Name Author Smith, 1869

Collector K. Baba

Collecting Date 08/05/1985

Locality Komagawa, Asahi, N-Echigo, Honshu

Relation Type (associated plants) host: ヤマウツギ

The database is written in English and is administered by a SIGMA text database management system working at a workstation in the Research Institute for Information Technology, Kyushu University.

A user can presently access the AIIC database by visiting the following URL: <http://aiic.jp/>

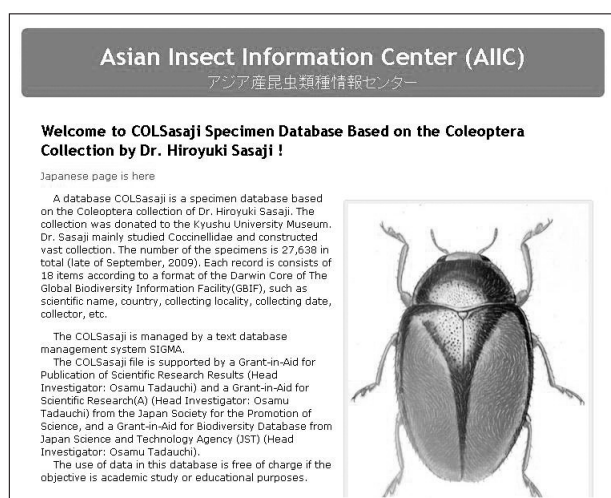


Fig. 7. A home page of a specimen database file COLSasaji in the AIIC in English version.

The home page of the AIIC database and each of the files, ELKUType, BeeELKU, BeeFukuda, BeeCASia, BeeFTadauchi and COLSasaji are presented in Figs. 1-6. Operation of the SIGMA system is explained in Arikawa et al. (1987, 1988).

## Acknowledgements

We are indebted to Assoc. Prof. S. Kamitani and Mr. D. Yamaguchi of the Entomological Laboratory, Kyushu University for their various help. This is a Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 6, No. 74). This work was supported by a Grant-in-Aid for Scientific Research (A) (Head investigator: O. Tadauchi, No. 18208006), and in part by Grant-in-Aid for Publication of Scientific Research Results (Head investigator: O. Tadauchi), and Grant-in-Aid for Biodiversity Database from Japan Science and Technology Agency (JST) (Head investigator: O. Tadauchi). This work was also supported in part by Global COE Program (Center of excellence for Asian conservation ecology as a basis of human-nature mutualism), MEXT, Japan (Head investigator: T. Yahara).

## References

- Arikawa, S. et al., 1987. A text database management system SIGMA, Version 2. *Koho, Computer Center Kyushu Univ.*, 20: 517-581. (In Japanese.)
- Arikawa, S. et al., 1988. SIGMA: A text database management system. *RIFIS Techn. Rep. Res. Inst. Fundam. Inform. Sci., Kyushu Univ.*, CS-3: 1-16.

- Tadauchi, O., 1987. A public database of entomology KONCHU and its usage. *Koho, Computer Center Kyushu Univ.*, **20**: 597-614. (In Japanese.)
- Tadauchi, O., 1994. ESAKIA file, one of the public taxon-based entomology database KONCHU produced at the Computer Center of Kyushu University. *Esakia*, (34): 227-237.
- Tadauchi, O., A. Dawut & H. Inoue, 2001, On image database file HANABACHI based on the Japanese bees. *Esakia*, (41): 149-154.
- Tadauchi, O. & H. Inoue, 2000a. On MOKUROKU file based on "A Check List of Japanese Insects" on INTERNET. *Esakia*, (40): 81-84.
- Tadauchi, O. & H. Inoue, 2000b. On "Dictionary of Japanese Insect Names (DJI)" on INTERNET. *Esakia*, (40): 85-86.
- Tadauchi, O, H. Inoue & Y. Higashiura, 2003. On image database file TOBIKOBACHI based on the Japanese Encyrtid wasps. *Esakia*, (43): 51-56.
- Tadauchi, O., H. Inoue & Y. Takematsu, 1999. Taxon-based entomology database KONCHU on INTERNET and its usage. *Esakia*, (39): 53-62.
- Tadauchi, O., K. Mitai and H. Inoue, 2007. Reference database file TABR based on tropical Asian bees. *Esakia*, (47): 21-23.