

A Review of the Bionomic Studies on the Indomalayan Halictine Bees (Hymenoptera: Halictidae)

Sakagami, Shoichi F.

Ebmer, Andreas W.

Tadauchi, Osamu

<https://doi.org/10.5109/2625>

出版情報 : ESAKIA. 38, pp.85-88, 1998-03-31. Entomological Laboratory, Faculty of Agriculture,
Kyushu University

バージョン :

権利関係 :

A Review of the Bionomic Studies on the Indomalayan Halictine Bees (Hymenoptera: Halictidae)^{1), 2)}

Shoichi F. SAKAGAMI[†]

Ainosato, 1-6, 2-2-610, Kitaku, Sapporo, 002 Japan

Andreas W. EBMER

Kirchenstrasse 9, A-4048 Puchenau, Austria

and

Osamu TADAUCHI

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

Abstract. Bionomic studies of halictine bees in Indomalayan region are briefly reviewed chronologically.

Key words: Hymenoptera, Halictidae, bionomics, Indomalayan region, review.

The subfamily Halictinae is one of the largest bee groups, certainly involving more than 2000 species in the world. They are a fascinating group for the studies of social structure in insects. Although not having realized the higher social levels attained by the family Apidae, they exhibit one of the richest social spectra among animals, ranging from the strictly solitary life (= brood rearing nests are each cared by a single female) to the fairly developed eusociality, with inclusion of communal and semisocial life (Michener, 1974, 1988; Sakagami, 1974; Eickwort, 1981). Moreover, their nest architecture is quite variable among species or supraspecific taxa, some groups having developed the most elaborated nest patterns so far known in soil-nesting bees (Sakagami & Michener,

¹⁾ Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, (Ser. 4, No. 97).

²⁾ Reprint request to O. Tadauchi.

1962; Michener, 1974; Sakagami, 1974; Eickwort & Sakagami, 1979; Sakagami *et al.*, 1985).

However, most studies on these aspects were made in the Holarctic region. In the tropical and subtropical regions, some studies were made in the Neotropical region, mainly in Costa Rica and Brazil, and in Australia. In the Palaeotropical regions, virtually only by Michener (1969) in Africa, and only a few studies in Indomalayan region as chronologically reviewed below.

Pagden (1934) observed the nesting habit of *Halictus discursus* Cameron in Malaya (now in *Homalictus*). Batra (1966) studied nests and inhabitants of nine Indian species and showed that *Halictus* (*Halictus*) *latisignatus* Cameron, *H. (H.) paris* Bingham, *H. (Seladonia) vicinus* Vachal, *Lasioglossum (Ctenonomia) splendidum* (Vachal), *Nomioides minutissimus* (Rossi), and *N. variegatus* (Olivier) are social or socially disposed. Batra (1967) presented the flower visiting phenology of some halictines in Punjab and she (1977) gave a general review on the bees of India. Sakagami & Wain (1966) described the caste-linked cephalic polymorphism in females of *H. latisignatus*. Sakagami (1968) and Sakagami & Matsumura (1971) reported the serially arranged cells and communal life of *L. (Ctenonomia) albescens* (Smith) in Malaya and Nepal, respectively. Schmidt & Schmidt (1986) recorded the nests of *Lasioglossum kinabaluensis* Michener (the subgeneric position not yet settled, possibly each contains only one cell: the feature so far known only recorded in *Halictus victoriellum* (Cockerell) (Rayment, 1935, now placed in *Lasioglossum (Chilalictus)*). Sakagami *et al.* (1991) described *Thrincostruma (Diagonozus) asianum* from Sumatra and referred to its oligotrophy to *Impatiens*. Tadauchi & Alam (1993) made a survey of pollinating wild bee fauna on mustard fields in Bangladesh including nine halictine bees and assessed that winter season is relatively rich despite adverse natural conditions. Sakagami *et al.* (1994) described a subtropical species, *Lasioglossum (Evyllaesus) subtropicum* from Iriomote Is., southernmost Japan and preliminarily reported its eusociality and the queen-worker size difference highest among the so far studied eusocial *Lasioglossum*.

There are virtually all of the bionomic contributions made in the tropical and subtropical Asia. Closer analysis of the halictine social life need periodical nest excavations and examination of the females as for age, and ovarium as well as spermathecal states. We expect that the bionomics of this fascinating bees would be studied in future by the entomologists residential in tropical Asia.

References

- Batra, S. W. T., 1966. Nests and social behavior of halictine bees of India (Hymenoptera, Halictidae). *Ind. J. Ent.*, 2 8: 375-393.
- Batra, S. W. T., 1967. Crop pollination and the flower relationships of the wild bees of Ludiana (Hymenoptera: Apoidea). *J. Kansas ent. Soc.*, 4 0: 164- 177.
- Batra, S. W. T., 1977. Bees of India (Apoidea), their behavior management and a key to the genera. *Orient. Ins.*, 11: 289-324.
- Eickwort, G. C., 1981. Presocial insects. pp. 199-280, *In* Hermann, H. R. (ed.) *Social Insects*, 2, 491 pp, Academic Press.
- Eickwort, G. C. & S. F. Sakagami, 1979. A classification of nest architecture of bees in the tribe Augochlorini (Hymenoptera: Halictidae, Halictinae), with description of a Brazilian nest of *Rhyncocorynura inflaticeps*. *Biotropicu*, 11: 28-37.
- Michener, C. D., 1969. Notes on the nests and life histories of some African halictid bees with description of a new species. *Trans. Amer. ent. Soc.*, 9 4: 473-497.
- Michener, C. D., 1974. *The Social Behavior of the Bees. A Comparative Study.* 404 pp, Belknap Press Harvard Univ. Press, Cambridge, Mass.
- Michener, C. D., 1988. Reproduction and castes in social halictine bees. pp. 75-1 19, *In* Engels, W. (ed.) *Social Insects: An Evolutionary Approach to Castes and Reproduction.* Springer.
- Pagden, H. T., 1934. Biological notes on some Malayan aculeate Hymenoptera. I-III. *J. Feder. Malay State Mus.*, 17: 458-492.
- Rayment, T. 1935. *A Cluster of Bees*, 752 pp, Endeavour Press, Sydney.
- Sakagami, S. F., 1968. Nesting habits and other notes on an Indomalayan halictine bee, *Lasioglossum albescens* with description of *L. a. iwatui* ssp. nov. *Malay. Nat. J.*, 2 1: 85-99.
- Sakagami, S. F., 1974. Sozialstruktur und Polymorphismus bei Furchen- und Schmalbienen (Halictinae). pp. 257-297, *In* Schmidt, G. (ed.) *Sozialpolymorphismus bei Insekten. Probleme der Kastenbildung im Tierreich.* 974 pp.
- Sakagami, S. F., M. Kato & T. Ichino, 199 1. *Thrinchostoma (Diagonozus) asianum* sp. nov.: Discovery of an African subgenus of long-malared halictine bees from Sumatra, with some observations on its oligotrophy to *Impatiens*. *Tropics*, 1: 49-58.
- Sakagami, S. F. & T. Matsumura, 1971. Bees from Nepal II, *Lmioglossum albescens*, with some bionomic notes. *Annot.zool. Japan*, 44: 47-55.

- Sakagami, S. F., T. Matsumura & Y. Maeta, 1985. Bionomics of the halictine bees in northern Japan III. *Lasioglossum (Evylaeus) aloddalum*, with remarks on the serially arranged cells in the halictine nests. *Kontyû*, 53: 409-419.
- Sakagami, S. F. & C. D. Michener, 1962. *Nest Architecture of the Sweat Bees. A Comparative Study of Behavior*. 135 pp, Univ. Kansas Press,
- Sakagami, S. F., R. Miyanaga & Y. Maeta, 1994. Discovery of a eusocial halictine bee, *Lasioglossum (Evylaeus) subtropicurn* sp. nov. from Iriomote Is., southernmost Japan, with a morphometric comparison of castes in some social halictines (Hymenoptera, Halictidae). *Bull. Agr. Shimane Univ.*, 28: 5-21.
- Sakagami, S. F. & F. Wain, 1966. *Halictus latisignatus* Cameron: a polymorphic Indian halictine bee with caste differentiation. *J. Bombay Nat. Hist. Soc.*, 63: 57-73.
- Schmidt, J. O. & P. J. Schmidt, 1986. A nesting aggregation of *Lasioglossum kinabaluense* Michener in Borneo (Hymenoptera, Halictidae). *J. Kansas ent. Soc.*, 59: 671-674.
- Tadauchi, O. & Md. Z. Alam, 1993. Survey of pollinating wild bee fauna on mustard fields in Bangladesh. *Bull. Inst. Trop. Agr., Kyushu Univ.*, 16: 91-106.