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TAXONOMIC ASSESSMENT OF INSECTS RECORDED IN KĀLIDĀSA'S WORKS

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INTRODUCTION

Kālidāsa was a famous litterateur in ancient India. Till date seven works, written by the great literature, had been discovered. They are *Abhijñāna Śakuntalā*, *Kumārsambhavaṃ*, *Mālavikāgnimitraṃ*, *Meghadūtaṃ* (Uttara Megha, Purva Megha), *Raghuvamśaṃ*, *Vikramorvśīyaṃ*, and *Ṛtusaṃhāra*. Period of Kālidāsa is disputable between 200 B.C. and 415 A.D., hence no period is mentioned here. For further reference Karmakar (1923) and Krishnamoorthy (1982) may be consulted.

These literature mentioned insects, birds, mammals, fishes and other animals. The descriptions of the animals have been made either citing by their general appearance or by their behaviour to make comparison with human body and behaviour.

Bhaduri *et al.*, (1972), Gupta (1962) reported descriptions of insects mentioned in Kālidāsa's works; but no attempt was made to make an assessment of probable taxonomic status of the insects. In the present article an attempt has been made to assess the taxonomic status of the insects. Sanskrit names, their references in Kālidāsa's works, description cited by Kālidāsa and a little discussion on each insect have been given. For collection of names of insects Rajendranath Vidyabhusan's *Mahākavi Kālidāser Granthāvali* (with grammatical notes, explanation of words, Bengali translation) and C. S. Gupta (1962) have been consulted.

Following names of insects were obtained in Kālidāsa's works :

1. Ali,
2. Bhramara,
3. Dvirepha,
4. Madhukara,
5. Bhṛṅga,
6. Daṃśa,
7. Khodyota,
8. Lākṣā,
9. Madhumakṣikā,
10. Madhupa,
11. Pataṅga,
12. Pipīlikā,
13. Śalabha,
14. Saṭpada,
15. Śilimukha,
16. Valmī.

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NOTES ON INSECTS

1. *Ali*

Mentioned in : Raghuvamśam (IX-44, 45; XII-102); Kumārsambhavam (IV-15), Ṛtusamhāra (VI-35, 38).

Description : It is a black insect, gregarious in nature and produces sound when fly in swarms; visits tilaka flowers and help in pollination.

Remark : According to Mukhopadhyaya and Bhattacharya (1966) 'Ali' stands for Bee, Crow, Cuckoo Scorpion etc. But the present description agrees with Bees (*Apis*). Bingham (1897) in his Fauna of British India (Vol. 1) reported body colour of *Apis* species as black. From the description available in Kālidāsa's Work, the species appears to be close to *Apis dorsata* Fabricius.

2. *Bhramara*

Mentioned in : Raghuvamśam (III-8, V-43, 68, VII-ii; X-57, XVI-47); Kumārsambhavam (XIII-27), Abhijñāna Śakuntakam (V-19); Mālavikāgnimitram (IV-2).

Description : Its body has shining black colour, like the eyes of beautiful ladies and nipple of breast of an advanced stage pregnant lady; gregarious in nature, emits sound, visits mango inflorescence, moves one flower to another flower.

Remark : Its description agrees with *Xylocopa fenestrata* (Fabricius). Bingham (1897) reported five species of *Xylocopa* from India. All of them are black. But *Xylocopa fenestrata* is shining black. This agrees with eyes as well as nipple colour of a lady. Bingham noted that *Xylocopa* are among the commonest insects in India, often coming to houses with a loud buzzing sound.

3. *Dvirepha*

Mentioned in : Kumārsambhavam (I-27, VII-36 and 56); Ṛtusamhāra (III-6, VI-1, 16 and 36). Mālavikāgnimitram (III-5), Raghuvamśam (VI-7; VI-13).

Description : It produces sound, prefers mango inflorescens and nectar of lotus.

Remark : Bees are nectar feeders. *Apis* species produce honey from lotus nectar. Therefore, it is conjectured that *Dvirepha* is probably a species of *Apis*.

4. *Madhukara*

Mentioned in : Ṛtusamhāra (VI-29), Abhijñāna Śakuntalam (VI-19 and 20).

Description : Sound producing, nectar feeding insects active during the spring season.

Remark : Madhukara means that produces honey. Insects referred here are nectar feeder and active during the spring season, which is practically the blossoming season of most of the flowers.

Honey bee's sounds are audible when they are in swarms. Madhukara also means lover; which is not applicable here. It is therefore, conjectured that Kalidasa probably tried to describe *Apis* species.

5. *Bhr̥ṅga*

Mentioned in : Ṛtusamhāra (II-14, 15; VI-23, 26).

Description : Gregarious, sound producing (insect) active during rains and spring prefers lotus for rest, attracted to the ichor of the elephant.

Remark : According to the Mukhopadhyay and Bhattacharya (1966) Bhr̥ṅga is a bee. But from the description it is not possible to decipher its taxonomic status.

6. *Daṃśā*

Mentioned in : Raghuvamśam (II-5).

Description : Daṃśā annoys cattle and bites them.

Remark : This is a horse-fly (Tabanidae : Diptera : Insecta). Horse-fly bites cattle and horses. A.D. Imms (1965) writes, "Horse-flies are active on warm sunny days. *Tabanus* species are particularly troublesome to horses and cattle, approaching their victim with a loud hum"

7. *Khadyota*

Mentioned in : Meghadūtaṃ, Uttar Megha (21).

Description : Khadyota is gregarious in nature and emits light in the field.

Remark : It is a coleoptera, belonging to the family Lampyridae. A. D. Imms (1965) has written about lampyrids, "They are nocturnal insects and most of the members are provided with photogenic organs which emit more or less bright light"

8. *Lākṣā*

Mentioned in : Raghuvamśam (XVI-15), Kumārsambhavam (V-34), Ṛtusamhāra (I-5).

Description : Lākṣā produces red colour, used by ladies in making them attractive.

Remark : The insect belongs to coccid group of Homoptera. *Dactylopius coccus* is well known cochneal insect cultivated for much prized cochneal dye. In South India, *Dactylopius indica* is very common coccid which is used for red colour (see Mani, 1968).

9. *Madhumakṣikā*

Mentioned in : Raghuvamśam (IV-63), Kumārsambhavam (VII-72), Mālavikāgnimitram (II-2).

Description : Madhumakṣikā produces honey and protects that vigorously.

Remark : Mani (1968) reported that Honeybees belong to the family Apidae of the Order Hymenoptera. Four common Honeybees occur in India — *Apis mellifica*, *A. indica*, *A. dorsata*, *A. florea*.

10. *Madhupa*

Mentioned in : Ṛtusamhāra (VI–37).

Description : It is gregarious in nature, active in spring.

Remark : Madhupa means that which drinks honey. It is, therefore, conjectured that probably it is a species of *Apis*.

11. *Paṭaṅga*

Mentioned in : Kumārsambhavam (III–64).

Description : Insects which fall on fire while flying.

Remark : This is ant. It is not possible to sort out the genus or the species of ants, since most of them develop wings and fly near fire and sacrifice their lives. They are Formicidae.

12. *Pipīlikā*

Mentioned in : Mālavikāgnimitram (III–13 and 30).

Description : It remains on mango trees, bites when disturbed.

Remark : Tiwari (1999) reported the ant, *Oecophylla smaragdina* (Fabricius) as follows :

“This is the notorious and vicious ‘Red-Ant’ of India; it inhabits in trees and makes nest in leaves” He also wrote, “The species was collected from nests on *Mangifera indica*, *Strychnosa* sp., *Nuxvomica* sp., coconut and Ashoka trees”

Hence it is conjectured that species mentioned in Kālidāsa may be *Oecophylla smaragdina* (Fabricius).

13. *Śalabha*

Mentioned in : Abhijñāna Śakuntalam (I–30).

Description : Śalabha is red coloured, fly in swarm. The colour of the body resembles reddish colour of the environment during the descending of the sun in the horizon.

Remark : According to Mukhopadhyaya and Bhattacharya (1966) it is a locust. Mani (1968) writes, “A Locust is a migratory grass hopper that swarms at regular intervals” “*Schistocerca gregaria*, the desert locust, Gregarious phase : pale yellow in the sexually mature individuals, predominantly rose-coloured in the young adults”

14. *Satpada*

Mentioned in : Raghuvamśam (VI-69), Kumārsambhavam (VIII-33 and 39).

Description : It is gregarious in nature, fly and move in rows, prefer to remain on mango trees during blossoming. Satpada in Sanskrit which has got six legs.

Remark : Although colour is not mentioned but the behaviour agrees with red ant, *Oecophylla smaragdina* (Fabricius).

15. *Silimukha*

Mentioned in : Raghuvamśam (VIII-57).

Description : It occurs in South India, near Malayahill. Attracted to ichor flowing from the temples of elephant.

Remark : Mukhopadhyaya and Bhattacharya (1966) considered it as a Bhramara. Here it is conjectured that the insect may either be of *Apis* or of *Xylocopa* of the family Apidae (Hymenoptera). It is also to be noted that Mallinātha regards it as Ali, Nandargikar (1897) translated it as sting-mouthed black bee.

16. *Valmī*

Mentioned in : Abhijñāna Samuntalam (VII-11), Meghadūtam (Purba Megha 15).

Description : Well built termite hill, lizards, snakes, scorpions inhabit, birds built nest inside.

Remark : According to Mukhopadhyaya and Bhattacharya (1966) it is termite. Survey parties from Zoological Survey of India have several times collected snake, Lizards, scorpion, collembala (Wingless insect). In all cases the termites identified as *Odontotermes obessus* (Rmb.). Sen-Sarma (1974) reported some insect species from termite mounds. Imms also reported occurrence of birds nest, lizard, snakes and scorpions in the termite mounds.

DISCUSSION

Kālidāsa used common vernacular names of insects, but the morphology and behaviour he described help us to decipher the probable taxonomic statuses of the insects. Followings have been conjectured :

1. *Apis* species (Order Hymenoptera : Family Apidae) is the probable scientific name of Ali, Dvirepha, Madhukara, Madhumaks ikā and Madhupa. Gupta isolated Ali from the Dvirepha, Madhukara, but meaning of the Words and description in Kalidasa's Works contradict Gupta's (1961) contention.

2. *Xylocopa* species (Fabricius) has been considered as the name for Bhramara; but Gupta (1961) clubbed it with *Dvirepha* and *Madhukara*. As per description cited by Kālidāsa Bhramara does not produce honey, on the other hand *Dvirepha* and *Madhukara* do produce honey. In Sanskrit Bhramara is the common name for Honeybee as well as other bees.
3. *Tabanus* species (Order Diptera : Family Tabanidae) has been assigned to *Damśa*, because its nature agrees with the modern researches on Tabanids.
4. Species of Lampyridae (Order : Coleoptera) has been considered the proper taxonomic status of Khadyota. Gupta (1961) considered it as glow Worm or firefly. Glow Worm is wingless insect remain in soil; but firefly (Lampyrids) is easily visible in the night.
5. Species of Coccidae (Order : Homoptera) has been assigned to *Lākṣā* since it produces^{red} colour.
6. Species of Formicidae have been considered as the name of *Pataṅga*, *Pipīlikā* and *Saṭapada*. Of which habit/behaviour of *pipilika* and *saṭapada* agree with behaviour of *Oecophylla smaragdina* (Fabricius).
7. Śīlimūkha's taxonomic status can be considered as a species of the family Apidae, since nothing of morphology and behaviour clearly say about it, but the meaning of the word indicates Ali and Bhramara.
8. Śālabha has been considered as *Schistocerca gregaria* (Order : Orthoptera; Family : Locustidae) since the nature and body colour agree with the modern studies.
9. Valmī is being considered as *Odontotermes obesus* (Order : Isoptera; Family : Termitidae). Therefore, it can be said that Kālidāsa indicated genera viz. *Apis*, *Xylocopa*, *Tabanus*, *Oecophylla*, *Schistocerca*, *Odontotermes* and unidentifiable species of the family Lampyridae and Coccidae of Coleoptera and Homoptera respectively.

SUMMARY

Kalidasa probably meant following insects of modern taxonomy (*Apis*, *Xylocopa*, *Tabanus*, *Oecophylla*, *Schistocerca*, *Odontotermes* species of *Lampyridae* and Coccidae have been discussed.

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REFERENCES

- Bhaduri, J.L., Tiwari, K.K. and Biswas, B. 1972. Zoology : pp. 403-444. In *A Concise History of Science in India* (Ed. D. M. Bose *et al*) Indian National Science Academy.
- Bingham, C.T. 1897. *The Fauna of British India, including Ceylon and Burma*. Vol. 1. Wasps and Bees. (First Indian Reprint Edition 1975). Today & Tomorrow's Printers & Publishers, New Delhi.
- Gupta, C.S. 1962. Insects in the literature of Kālidāsa. *Bull. Natl. Inst. Sci., India, New Delhi* (Symp. Hist. Sci. in Ancient and Mediaeval India, Aug, 4-5 1961). : 145-172.
- *Karmakar, R.D. 1923. The Chronological Order of Kālidāsa's Works. *Proc. Conf. 2nd. Oriental Conference Calcutta*. pp. 239-247.
- *Krishnamoorthy, K. 1982. Kālidāsa. Motilal Banarasidass Publ. Delhi, Varanasi.
- Imms, A.D. 1965. A General Text Book of Entomology, 9th Edition (First Asian Edition).
- Mani, M.S. 1968. General Entomology. Oxford & IBH Publishing Co., Calcutta.
- *Mallinātha. Middle or latter half of the fourteenth century A.D. Sanjīvani.
- *Nandorgikar, G.R. 1897. Raghuvamśam of Kālidāsa. Bombay. Radhovai, Atmaram, Sagoon.
- Vidyābhusan, Rajendranath. 1372 (B.S.). Mahākabi Kālidāser Granthabalī. Ī sh & 2nd rd (with Grammar and analysis of meaning) Basumatī-Sāhitya Mandir. Calcutta. 11th edition (1965).
- Mukhopadhyaya, G. and Bhattacharya, G. 1966. A Trilingual dictionary. : 454. (Calcutta Sanskrit College Research Series XL. VII.), Sanskrit College, Calcutta.
- Tiwari, R.N. 1999. Taxonomic studies on ants of Southern India (Insecta : Hymenoptera : Formicidae) *Mem. zool. Surv. India*, 18(4) : 1-96.
- Sen-Sarma, P.K. 1974. Ecology and Biogeography of the termites of India. *Ecology and Biogeography in India* (Ed. M. S. Mani) : 421-472. Dr. W. Junk b.v. Publishers, The Hague, 1974.

*Not consulted in original.