

**GENERA OF THE DIASPIDOID SCALE INSECTS
(COCCOIDEA: DIASPIDOIDEA) OF SOUTH ASIA**

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ABSTRACT

The Diaspidoid scale insects of South Asia belong to 112 genera in the Halimococcidae (1 genus) and the Diaspididae (116 genera). A check-list of these genera is given. Numbers in parenthesis indicate the number of species in each genus in the region, totaling 362 named species and subspecies.

KEY WORDS: Diaspidoidea, Diaspididae, Halimococcidae, South Asia.

A check-list of the scale insects (Homoptera: Coccoidea) of South Asia, comprising Bangladesh, Bhutan, India, Maldives, Myanmar (= Burma), Pakistan and Sri Lanka (= Ceylon), has been compiled by the author. It includes the valid names, with their respective synonyms, of the taxa recorded from South Asia, together with data on their host plants and distribution in this region.

Part I of the check-list was published (Varshney, 1992), dealing with 117 genera and 341 species and subspecies of 15 families, namely Margarodidae, Monophlebidae, Ortheziidae, Tachardiidae, Eriococcidae, Kermesidae, Dactylopiidae, Beesoniidae, Pseudococcidae, Acleridae, Asterolecaniidae, Cerococcidae, Lecanodiaspididae, Coccidae and Conchaspidae. Part II, the last one, is in its final stage of preparation, covering 112 genera, 362 named species and subspecies and 34 undetermined species of Halimococcidae and Diaspididae.

The armored scale insects (Diaspidoidea) constitute the largest group within the Coccoidea. Many species are pests of agricultural crops. In a recent estimate (Miller and Davidson, 1990), 12% of the world fauna of these insects are considered as major pests. Within an evolutionary sequence, the Diaspidoids are regarded as the most advanced coccoids (Miller and Kosztarab, 1979). Their evolutionary trends and subdivisions were discussed by Takagi (1981) and Danzig (1990). Borchsenius (1966) catalogued the species and genera of the world. Several monographic reviews have been published in recent years, e.g. *Chionaspis* (Takagi, 1985) and the Odonaspidini (Ben-Dov, 1988). Rosen (1990) edited two volumes on these insects, their biology, natural enemies and control. Varshney (1985) reported on the occurrence of 323 species and subspecies in the Indian region.

Listed below are the genera which have been recorded from South Asia, with their number of species and subspecies given in parentheses.

Family Halimococcidae

Only *Halimococcus* (1) recorded.

Family Diaspididae

Subfamily Protodiaspidinae (= Protodiaspidina: Takagi, 1993)

Only *Megacanthaspis* (1) recorded.

Subfamily Parlatoriinae

Tribe Kuwanaspidini

Only *Kuwanaspis* (3 + 1 undetermined) recorded.

Tribe Leucaspidini

Five genera recorded: *Leucaspis* (3 + 1 undetermined); *Lopholeucaspis* (5 + 1 undetermined); *Radionaspis* (1); *Salicicola* (1 + 1 undetermined); *Suturaspis* (1).

Tribe Parlatoriini

Fourteen genera recorded: *Aleucaspis* (1); *Apteronidia* (1); *Bigymnaspis* (1); *Cryptoparlatoarea* (1); *Genaparlatoria* (1); *Greeniella* (6); *Gymnaspis* (8 + 1 undetermined); *Neoleucaspis* (1); *Neparla* (1); *Parlaspis* (1); *Parlatorearum nomen nudum* (1 undetermined); *Parlatoreopsis* (3); *Parlatoria* (28 + 1 undetermined); *Tamilparla* (1).

Subfamily Odonaspidinae

Tribe Rugaspidiotini

Two genera recorded: *Natalaspis* (1); *Rugaspidiotus* (1 + 1 undetermined).

Tribe Odonaspidini

Four genera recorded: *Berlesaspidiotus* (1); *Circulaspis* (1); *Froggattiella* (2); *Odonaspis* (6 + 1 undetermined).

Subfamily Aspidiotinae

Tribe Aspidiotini

Thirty-one genera recorded: *Abgrallaspis* (1); *Aonidia* (14); *Aonidiella* (9); *Aspidiella* (3); *Aspidiotus* (7 + 1 undetermined); *Borchseniaspis* (1); *Brainaspis* (1); *Chortinaspis* (2 + 1 undetermined); *Chrysomphalus* (5); *Cryptoparlatoareopsis* (6 + 1 undetermined); *Diaspidiotus* (4); *Duplaspidiotus* (3); *Furcaspis* (1); *Gomphaspidiotus* (1); *Greenoidea* (1); *Hemiberlesia* (2); *Lindingaspis* (5 + 1 undetermined); *Melanaspis* (2 + 1 undetermined); *Morganella* (1); *Mycetaspis* (1); *Neofurcaspis* (1); *Oceanaspidiotus* (1); *Octaspidiotus* (5); *Paraonidia* (1); *Parrottia* (1); *Pseudoonidia* (3 + 1 undetermined); *Quadraspidotus* (4 + 1 undetermined);

Rhizaspidiotus (1 undetermined); *Rungaspis* (1 undetermined); *Semelaspis* (2); *Temnaspidiotus* (2).

Subfamily Diaspidinae

Tribe Lepidosaphedini

Twenty-one genera recorded: *Acanthomytilus* (1 + 1 undetermined); *Andaspis* (13 + 1 undetermined); *Aonidomytilus* (1); *Caia* (1); *Cornimytilus* (1); *Cornuaspis* (2); *Coronaspis* (1); *Dinaspis* (1); *Eucornuaspis* (2); *Howardia* (1); *Insulaspis* (9 + 2 undetermined); *Ischnaspis* (2); *Lapazia* (1); *Lepidosaphes* (5 + 1 undetermined); *Mytilaspis* (3); *Neopinnaspis* (1); *Nilotaspis* (3); *Paralepidosaphes* (2); *Pinomytilus* (2); *Pistaciaspis* (1); *Velataspis* (1).

Tribe Diaspidini

Thirty-two genera recorded: *Adiscofiorinia* (2); *Africaspis* (1); *Aulacaspis* (17 + 1 undetermined); *Cameronaspis* (1); *Chionaspis* (13 + 1 undetermined); *Contigaspis* (4); *Dactylaspis* (1 undetermined); *Dentachionaspis* (2); *Diaspis* (9 + 2 undetermined); *Duplachionaspis* (2 + 1 undetermined); *Fiorinia* (20 + 2 undetermined); *Greenaspis* (3); *Lineaspis* (1); *Narayanaspis* (1); *Neoquernaspis* (4); *Nudachaspis* (1); *Parachionaspis* (1); *Pinnaspis* (16 + 2 undetermined); *Poliaspis* (1); *Proceraspis* (1); *Pseudaulacaspis* (16); *Pseudoparlatoria* (2); *Ramachandraspis* (1); *Rutherfordia* (2); *Sinistraspis* (1); *Tamuraspis* (1); *Tecaspis* (1 undetermined); *Tenuiaspis* (1); *Thysanofiorinia* (2); *Trullifiorinia* (5); *Unaspis* (4); *Xiphuraspis* (1).

REFERENCES

- Ben-Dov, Y.** 1988. A taxonomic analysis of the armored scale tribe Odonaspini of the world (Homoptera: Coccoidea: Diaspididae). *US Department of Agriculture, Agricultural Research Service Technical Bulletin* No. 1723. 142 pp.
- Borchsenius, N.S.** 1966. A Catalogue of the Armoured Scale Insects (Diaspidoidea) of the World. Nauka, Moscow, Leningrad. 449 pp.
- Danzig, E.M.** 1990. The main evolutionary trends in the armoured scales. *Proceedings of the Sixth International Symposium of Scale Insect Studies, Cracow (Part II)*. pp. 37–40.
- Miller, D.R. and Davidson, J.A.** 1990. A list of the armoured scale insect pests. In: *Armored Scale Insects, Their Biology, Natural Enemies and Control*. Vol. B. Edit. D. Rosen. Elsevier Science Publishers, Amsterdam. pp. 299–306.
- Miller, D.R. and Kosztarab, M.** 1979. Recent advances in the study of scale insects. *Annual Review of Entomology* 24:1–27.
- Rosen, D.** (Edit.). 1990. *Armored Scale Insects, Their Biology, Natural Enemies and Control*. Vols. A and B. Elsevier Science Publishers, Amsterdam.
- Takagi, S.** 1981. The genus *Megacanthaspis*, a possible relic of an earlier stock of the Diaspididae. *Insecta Matsumurana (New Series)* 25:1–43.
- Takagi, S.** 1985. The scale insect genus *Chionaspis*: a revised concept. *Insecta Matsumurana (New Series)* 33:1–77.
- Takagi, S.** 1993. Primitive Diaspidini. *Insecta Matsumurana (New Series)* 49:1–67.
- Varshney, R.K.** 1985. A review of Indian coccids. *Oriental Insects* 19:1–101.
- Varshney, R.K.** 1992. A check-list of the scale insects and mealybugs of South Asia. Part I. *Records of the Zoological Survey of India, Occasional Paper* No. 139. 152 pp.