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A REVIEW OF VELASQUEZ'S WORKS ON PHILIPPINE DIASPIDIDAE (COCCOIDEA, HEMIPTERA)[1]

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ABSTRACT

A critique of the works of Velasquez on Philippine Diaspididae is presented to give credit to his pioneering efforts as a student of Philippine Coccoidea and to rectify the mistakes and shortcomings he committed. *Acutaspis tingi* McKenzie is excluded from the Philippine fauna. Notes on *Chrysomphalus propsimus* Banks and the type-series of *Aspidiotus philippinensis* Velasquez are given.

Key words: Diaspididae, *Acutaspis tingi* McKenzie, *Chrysomphalus propsimus* Banks, *Aspidiotus philippinensis* Velasquez.

The family Diaspididae is presently the largest group of coccoids in the Philippines. In an on-going inventory of scale insects and mealybugs hitherto recorded in the country, there are 94 species of armored scale insects distributed in 29 genera as of June 30, 1993 (Lit, unpublished data). This number accounts for 54.33% of all known Philippine Coccoidea.

Among diaspids, the Aspidiotini is the best represented throughout the islands especially Luzon where most of the previous collections were concentrated. There are about 35 species under 16 genera. Several are important pests of a number of crops, notably those belonging to the genera *Aonidiella, Aspidiotus, Chrysomphalus* and *Hemiberlesia*. These four were the subject of a study by Velasquez (1971).

Velasquez's paper and the checklist and host index he co-authored with one of us (LCR) (Velasquez and Rimando, 1969) came out a little more than five decades after the last comprehensive work on Philippine armored scale insects (Robinson, 1917). Hence, Mr. Velasquez is a Filipino pioneer coccidologist. Mr. Velasquez would have worked further on Philippine Aspidiotini and possibly also on other diaspid tribes, had not some circumstances forced or convinced him to leave behind his diaspid studies. A considerable amount of material was left untouched by him except for generic identification of some slide-mounted specimens. His collection also served as the basis for this paper which constitutes a second attempt to revive interest in the study of Philippine Diaspididae.

In as much as all subsequent studies on Philippine armored scale insects especially the tribe Aspiodiotini pick up from Velasquez's two papers (Velasquez and Rimando, 1969 and Velasquez, 1971), a critical review of his short-lived

stint as a student of the armored scale insects is here presented with the intention of pointing out and correcting the few mistakes he committed and citing some shortcomings we noted in his collection. At the same time, this aims to give credit to the strong points of his second and last paper.

The first paper on focus is the checklist by Velasquez and Rimando (1969) which was an assembly of 64 species under 25 genera, three tribes and one subfamily; the suprageneric grouping followed mainly that of Ferris (1937-1942). While the said checklist and host index succeeded in bringing together much of the obtainable information on Philippine scale insects at that time, it committed and/or repeated some errors that need rectification.

Pinnaspis uvariae (Cockerell and Robinson) (Tribe Diaspidini) was "proposed" by Velasquez and Rimando as a new combination, unaware that the same had been done earlier by Ferris and Rao (1947). The same combination already appeared in Borchsenius' (1966) Catalogue.

Acutaspis tingi McKenzie was also included in the said checklist. In the host index of the same paper, *A. tingi* was also listed as occurring on three orchid genera. This species was probably mistaken for *Lindingaspis tingi* McKenzie, the two having the same epithet and author. Furthermore, *A. tingi* has been recorded only on *Cocos nucifera* Linn. (Palmae) and *Ficus* sp. (Moraceae) while *L. tingi* feeds almost exclusively on orchid hosts. The latter does not appear in the checklist but was included later by Velasquez (1971) in the introduction of his paper on Aspidiotini. The former is a species from Mexico and Colombia and in fact, the genus *Acutaspis* is Neotropical in distribution with a few extensions to America north of Mexico and one isolated species, *A. acuta* (Mamet), occurring on *Anacardium* in Madagascar. Recording *A. tingi* in the Philippines without authentic specimens to document it, would only add to another doubtful disjunction in the distribution pattern of the genus. Besides, no other literature except the said checklist mentions the occurrence of *A. tingi* in the Philippines and no record of introduction or interception at points of entry exists. *A. tingi* in all probability does not occur here and is, therefore, excluded from the Philippine fauna.

Aside from *L. tingi*, Velasquez and Rimando also failed to include 16 other species previously recorded to occur in the Philippines. Velasquez (1971) enumerated 10 of these in the first part of his second paper, including *Lindingaspis ferrisi* McKenzie. The latter has not been reported to occur in the Philippines ever since it was described in 1950. The other seven species not mentioned in either paper are *Aspidiotus nerii* Bouche, *Parlatoria cinerea* Doane and Hadden, *P. mytilaspiformis* Green, *P. theae* Cockerell, *Pseudaulacaspis cockerelli* (Cooley), *Ps. dendrobii* (Kuwana) and *Pinnaspis musae* Takagi.

A number of misspellings (*laspus calami*) also appear in the said paper, which might not be solely a commission by Velasquez and Rimando but also by previous authors like Capco (1959). The following are the correct spellings: *Fiorinia fioriniae* (Targioni-Tozzetti), *Aulacaspis tegalensis* (Zehntner), *Genaparlatoria pseudaspidiotus* (Lindinger), *Parlatoria pergandii* Comstock, *P. ziziphi* (Lucas) and *Lepidosaphes macgregori* Banks.

Velasquez and Rimando also recommended a number of common names for the majority of species they listed. The name "tagalog scale" for *A. tegalensis* was

probably coined by the said authors thinking that the specific epithet was derived from either "Tagala" or "Tagalog", the southern region of Luzon Island, Philippines. The said common name is unfit for the species because the specific epithet refers to a place called Tegal in West Java, Indonesia. *P. ziziphi* and *Chrysomphalus dictyospermi* (Morgan) are better known as the citrus black scale and the Morgan scale, respectively.

Velasquez's second paper entitled "Some Philippine Armored Scale Insects of the Tribe Aspidiotini (Diaspididae, Homoptera)" published in 1971 was an excellent taxonomic review of four Aspidiotine genera, viz., *Aonidiella, Aspidiotus, Chrysomphalus* and *Hemiberlesia*. It dealt with 16 species including three new records - *Aonidiella citrina* (Coquillet), *Ao. taxus* Leonardi and *Hemiberlesia cyanophylli* (Signoret) - and one new species, *Aspidiotus philippinensis* Velasquez.

The thoroughness of his descriptions and sufficiency of details in his illustrations elicit praise and admiration for during his time and even up to now, the conduct of systematic studies on any insect group by an undergraduate student requires utmost patience, dedication and hard work, especially with the pitiful inadequacy of literature available in local libraries and the sad state of optical equipment.

There is, however, a glaring contrast between his paper and the way he handled the material upon which he based his work. In 1984, the first author (ILLJ) got hold of his collection and found all the material unlabelled except for collection numbers inscribed on the glass slides with tailor's crayon and some determination labels, including the holotype and 13 paratypes of *A. philippinensis*.

It was not easy labelling each slide, not to mention the fact that in some, the medium (modified Hoyer's) had started to crystallize and many specimens needed remounting, a task that has not yet been completed. The more important one, however, was labelling the types of *A. philippinensis* and determining which of the 14 is the holotype. It would have been easier if the describer only had syntypes and did not designate a holotype as it would probably be a matter of lectotypification from the series. But he did, and so it was necessary to look for signs or notations that would indicate or give a clue to holotype designation, which was fortunately found! A slide marked with an asterisk (*) and with the remarks "n. sp." was compared with his description and illustration. The mounted specimen matched them and this was labelled "holotype."There still remains a cloud of doubt, however, whether the specimen that has been labelled "holotype" was indeed the one designated by Velasquez. For the said action, the first author (ILLJ) assumes full responsibility. In view of this, future revisers of this group should take the appropriate action. This revelation, however, should serve notice to future aspirants for a career in systematics - LABEL AND LABEL PROPERLY!

In a recent paper of Parlatoriini, Lit (1990) mentioned some doubtful host associations of some specimens in the Velasquez collection. These maybe due to mislabelling, that is, an incorrect collection number might have been affixed. One example of this is a specimen of *Parlatoria ziziphi* (Lucas) on coconut (*Cocos nucifera* Linn.). Most diaspid workers have established that the said species is almost exclusively associated with the Rutaceae. In on-going studies on Philippine armored scales, indeed, this black parlatoria has never been encountered on a non-rutaceous host.

Another noticeable feature in both papers is the appearance of *Chrysomphalus propsimus* Banks in the synonymical citation of *C. ficus* Ashmead, presently regarded as a junior synonym of *C. aonidum* Linn. Velasquez must have followed what was done earlier by Lindinger (1935) and ignored the action of McKenzie (1939) when the latter revised the genus *Chrysomphalus*. According to the latter, *C. propsimus* is distinct, the absence of a cluster of ducts on the second abdominal segment alone being sufficient to permit its immediate separation from *C. ficus*. He added further in his discussion of the geographical distribution of the genus that *C. propsimus* has been already recorded three times,twice from the Philippines and once from Sumatra. Neither we nor Velasquez have encountered specimens of this species in the present collection although future attempts will likely yield them. Nevertheless, the arguments and evidences presented by McKenzie stand unless countered by subsequent findings and therefore, *propsimus* should presently be regarded as distinct from *ficus* (=*aonidum*). Indeed, the recent work of Williams and Watson (1988) reaffirmed the separation of *propsimus* from *aonidum*.

His faults notwithstanding, Velasquez succeeded in providing a good basis for his successors to start on. It would be a gross injustice to him not to cite that there were probably big reasons why he opted, was forced or perhaps, was convinced to cut short his diaspid studies especially during those politically restive years of the early '70's in the Philippines. An extraordinary student, that he was, he himself would have corrected his own mistakes had he the choice, the opportunity and the time.

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