

SHORT SCIENTIFIC NOTES

**Occurrence of *Alepa*s Rang (1829) in Indian Waters
(Cirripedia, Lepadidae).**

*Alepa*s navigator, the pedunculate cirripede has been reported and described by Pilsbry¹, from Philippines on a Discomedusa, during the Philippine cruise of the 'ALBATROSS' 1907-1910.

During our investigation on the Cirripede fauna off the coast of Porto Novo (Lat. 11° 30' N; Long. 79° 49' E), South India, a single specimen of *Alepa*s navigator Pilsbry was found washed ashore during January, 1972. The present material appears to be the second find after a lapse of more than six decades.

The present material has the following dimensions. The length of the capitulum, 36 mm; greatest width of the capitulum, 23; length of the peduncle, 16; diameter of the peduncle in the middle, 7.

We thank Dr. R. Natarajan, Director, for encouragement and Dr. Victor A. Zullo, University of North Carolina at Wilmington, U.S.A., and Dr. H. G. Stubbings, Admiralty Materials Laboratory, U.K., for help in identification. One of us (A. S. F.) thanks the U.G.C. for financial help.

CAS in Marine Biology, ANTONY S. FERNANDO,
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February 9, 1976.

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Coumarins of *Artemisia parviflora* Roxb.

Artemisia spp. have been reported to contain a number of coumarins and flavones¹. The present study has been done using *Artemisia parviflora* Roxb. collected from the high altitudes of Western Himalayas in Laddak and Lahaul. Whereas, *Artemisia maritima*² is rich in santonin and is found in the valley (around Baramulla), *A. parviflora* has no santonin like *Artemisia scoparia*³ found around Jammu Tawi, but contains three closely related coumarins, aesculetin, scopoletin and dimethyl ether of aesculetin.

Aerial parts (700 g) after repeated extraction with petroleum ether (60-80°) was exhaustively extracted with rectified spirit. The alcoholic concentrate (10.5 g) was chromatographed over neutral alumina (320 g) and eluted with solvents (100 ml) of increasing polarity (1) benzene

(2) benzene + chloroform mixtures (a) 3:1, (b) 1:1, (c) 2:3 and (3) ethyl acetate yielding three substances A (1.55 g), B (0.90 g) and C (0.46 g). Substance 'A' on recrystallisation from ethyl acetate melted at 144-145°, molecular weight 206 (mass spectra), $\lambda_{\text{max}}^{\text{MeOH}}$ 230, 250, 295, 345 (log $\epsilon = 4.28, 3.78, 3.75, 4.08$) $\nu_{\text{max}}^{\text{(KBr)}}$ 1732, 1635, 1575, 1480; and 870 cm^{-1} . The compound was found identical with 6, 7-dimethyl aesculetin. $R_f = 0.90$ tlc, silica gel, solvent: BEA (benzene: ether, acetic acid, 87:12:1).

Substance 'B' (recrystallised from acetone) m.p. 200-202° $\lambda_{\text{max}}^{\text{MeOH}}$ 229, 261, 295, 245 nm (log $\epsilon = 4.25, 3.8, 3.83, 4.2$) ν_{max} 3505, 1720, 1610, 1575, 1462, and 870 cm^{-1} , $R_f = 0.77$ (tlc., silica gel., solvent: BEA). The substance was identified as scopoletin. Complete methylation with dimethyl sulphate in anhydrous acetone gave substance 'A'.

Substance 'C', after recrystallisation melts at 266-68° C, gives green coloration with 1% ferric chloride in ethanol, $\lambda_{\text{max}}^{\text{MeOH}}$ 230, 355, $R_f = 0.44$ (tlc, solvent BEA). Found identical with aesculetin. Complete methylation with dimethyl sulphate in anhyd. acetone gave 6, 7-dimethyl aesculetin.

Regional Research Laboratory,
Jammu-Tawi, August 16, 1974. M. P. JAIN.
R. S. THAKUR.
P. R. RAO.

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Single Corpuscle of Stannius in the Teleost *Lepidocephalichthys guntea*

The corpuscles of Stannius are putative endocrine glands found in the mesonephros of holostean and teleostean fishes. The secretion(s) of corpuscles lack positive identification¹. In a study of the renal anatomy of about 100 specimens of *Lepidocephalichthys guntea* two specimens with a single corpuscle of Stannius were encountered. Normally the corpuscles are absent in this species.

The kidney in *Lepidocephalichthys* is a fused organ and the single oval corpuscle is embedded in the posterior region. On the peritoneal side encapsulated by fibrous connective tissue, which also penetrates the corpuscle to divide it into

distinct lobes. The rich vascular supply follows the collagenous septa. Each lobe contains loosely packed round cells free from connective tissue. The cells have prominent boundaries and are mononucleated. The slightly basophilic cytoplasm is scanty. A few large cells packed with granules stained with hematoxylin occur adjacent to the blood sinusoid.

This single corpuscle of Stannius in *Lepidocephalichthys guntea* is interesting since the minimum number so far recorded is two and the other members of this species lack any corpuscle. The histology of this single corpuscle is of type III³.

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December 8, 1975.

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Search for Sources of Resistance to Powdery Mildew in Black-Gram

Powdery mildew (*Erysiphe polygoni* DC) of black-gram (*Phaseolus mungo* L.) occurs almost every year in varying intensity depending upon climatic conditions at the time of pod-formation and maturity of the crop in Uttar Pradesh. However, no information appears to be available, so far, on the varietal resistance to this disease. The present study was, therefore, taken up at Kanpur and the results of testing of 306 varieties and strains of black-gram in the adult stage under epiphytotic conditions for three years (1972, 1973 and 1974) are reported in this communication.

In September, 1972, the powdery mildew appeared in an epidemic form and some of the genotypes among the cultures of black-gram, sown at the University Farm, were found to show varying degrees of resistance. These varieties were subsequently tested for two years under conditions of artificial epiphytotics both in the field as well as in glass-house by the technique of Mains and Deitz¹ and observations on disease reactions were also recorded according to his scale with some modifications. The varieties were placed in various categories of resistance and susceptibility on the basis of type of reactions as follows:

Highly resistant (Macroscopically no mycelium is evident)	Nil
Resistant (Trace to slight development of fungus evident macroscopically)	6203

Moderately resistant (Light development of fungus occurs)	65-1, 5902-1 and 5905-1-1
Moderately susceptible (A moderate development of fungus occurs accompanied by moderate sporulation)	A-1, H 10, T 27, 5902, 5905-1, 6311, 6315 and 6403
Very susceptible (Abundant fungal growth is evident accompanied by abundant sporulation)	294 varieties and strains including B 76, G1, L1 L35, L64, T9, T65, T77, UL1, UL2, UL131 and UPU2.

The results reveal that out of the 306 genotypes tested, only one proved resistant, three moderately resistant and the rest were found to be susceptible. The germplasm lines found resistant and moderately resistant may be utilized for breeding powdery mildew resistant varieties of black-gram.

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Asteromella: A New Generic Record from India

Asteromella morgan-jonii spec. nov.

Pycnidia maculae foliicolae, gregaria, atro-brunnea, pusillus, globosa, vel subglobosa, subepidermalis, innata, postea erumpentia, ostiolatis, 70-130 μ diam, conidiophora hyalina, laevis, enteroblastic; conidiis hyalina, semel-cellularis, cylindricus vel bacillaris, 2-2.8 \times 1.2-1.5 μ .

Ad foliis viventibus *Citrus maxima* (Burm.) Merril. (*C. decumana* L.), (Rutaceae), Pachpedi, Jabalpur, India, mense juli 1973, leg. N. D. Sharma.

Typus positus in Herb., I.M.I., Kew, sub numero, 186102, also in H.P.P., J.N.U. sub numero, 22.

The type specimen of the genus was sent to Commonwealth Mycological Institute, Kew, but it could not be placed under any of the existing species of *Asteromella*. So far no *Asteromella* has been reported on *Citrus*³. It is therefore described here as a new species. The species is described after Dr. G. Morgan Jones for his outstanding contribution in the group Coelomycetes (Fungi Imperfecti), *Asteromella morgan-jonii* spec. nov. Tilak⁷ in his compilation wrongly indexed *Asterostomella strophanti*¹ P. Henn. as *Asteromella strophanti*. In fact *Asterostomella* is a member of the order Peltrasterales² with "pinostromas com himenio invertido" of the family Asterinothyriaceae with, "micelio livre hipopodiado" with foamicrosporos, pinostromas radiados, dehiscencia estelar; sem hipostroma; whereas *Asteromella*⁹ Pass. and Thum. is a spermatial state of *Mycosphaerella*. The genus is a new record from India⁴.

Pycnidia in leaf spots, gregarious, dark brown, small globose to sub-globose, subepidermal, innate, later erumpent, ostiolate, 70–130 μ in diam; conidiogenous cells hyaline, smooth, enteroblastic; conidia hyaline, 1-celled, cylindrical to bacillar, simple, 2–2.8 \times 1.2–1.5 μ .

On living leaves of *Citrus maxima* (Burm.) Merrill. (*C. decumana* L.) (Rutaceae), Pachpedi, Jabalpur, India, July 1973, leg. N. D. Sharma.

The author expresses his grateful thanks to Dr. G. P. Agarwal for encouragement. Thanks are also due to Mr. A. Johnston, Director and Dr. E. Punithalingam of the Commonwealth Mycological Institute, Kew, for help in the identification of the species.

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March 10, 1976.

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New Records of Spiders as Predators of Maize Borer and Maize Jassid

The maize borer, *Chilo partellus* (Swinhoe) and maize jassid, *Zygnidia manaliensis* (Singh) are important pests of maize and jowar in India. While studying the field behaviour of maize borer during 1975, the maize borer and maize jassid were found to be preyed upon by eight species of spiders. The spiders, found preying on the respective insects, were collected from the field and their predatory habit was confirmed by feeding experiments in the laboratory.

In the case of maize jassid two species of spiders, viz., *Oxyopes* sp. (Oxyopidae) and *Pardosa leucopalpis* Gravely (Lycosidae) were identified. These spider species preyed upon both the nymphs and adults of

the maize jassid. In the case of maize borer, six species of spiders belonging to four different families were identified. These spiders entered the funnel of the plant in the field and fed on the younger instar (first and second) larvae of the maize borer. These were *Thomisus cherapunjeus* Tikader (Thomisidae); *Marpissa tigrina* Tikader and *Phidippus punjabensis* Tikader (Salticidae); *Araneus sinhagadensis* Tikader and *Araneus* sp. (Argiopidae) and *Oxyopes pandae* Tikader (Oxyopidae).

Spiders as predators of maize borer larvae have earlier been reported by Singh *et al.*². They reported 13 species of spiders belonging to seven families including *Araneus* sp., *Oxyopes pandae*, *Marpissa* sp. and *Phidippus* sp. Jandu¹ reported *Marpissa tigrina* Tikader to feed on citrus psylla, *Diaphorina citri* Kuwayama and to constitute 32% of the total spider population on citrus and *Oxyopes pandae* Tikader to feed on citrus whitefly, *Dialeurodes citri* Ashmd at Ludhiana. The present report of 6 species of spiders viz., *Oxyopes* sp. and *Pardosa leucopalpis* Gravely on maize jassid and *Thomisus cherapunjeus* Tikader, *Marpissa tigrina* Tikader, *Phidippus punjabensis* Tikader and *Araneus sinhagadensis* Tikader on maize borer are the first records from India.

The authors are grateful to Dr. B. K. Tikader, Deputy Director, Western Regional Station, Zoological Survey of India, Poona-5, for the identification of spider species.

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Ludhiana. March 15, 1976.

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2. Singh, B., Battu, G. S. and Atwal, A. S., *Indian J. Ent.*, 1974, **36** (2), (in press).

Sunnhemp Rosette: A New Virus Disease of Sunnhemp

Crotalaria juncea L. (Sunnhemp) is used for green manuring and for fibre production. In 1973, a severe mosaic disease, associated with filiformy and rosetting symptoms, was observed on the sunnhemp plants near Lucknow. The size and number of flowers per plant as well as seed formation was reduced. The seeds were smaller and deformed. The disease incidence was 40–80%.

The disease was mechanically transmitted to a few host plants only. The virus induced hypersensitive reaction in a few hosts but systemic symptoms as described earlier were produced on sunnhemp (*Crotalaria juncea* L.) only.

(a) *Cyamopsis tetragonoloba* L.

Local lesions appeared both on primary cotyledonary as well as on secondary trifoliate leaves after

2-3 days of virus inoculation in the form of small and black necrotic spots and were easily countable.

(b) *Chenopodium amaranticolor* Coste and Reyn.

Chlorotic local lesions appeared after 4-6 days of virus inoculation on inoculated leaves, these later on turned necrotic.

(c) *Vigna sinensis* Savi.

Chlorotic spots appeared 4-6 days after virus inoculation on primary cotyledonary and secondary trifoliate, inoculated leaves.

Besides these hosts, 84 representatives, viz., from families Amaranthaceae, Apocynaceae, Chenopodiaceae, Cucurbitaceae, Cruciferae, Compositae, Cannabinaceae, Leguminosae, Polemoniaceae and Solanaceae, were inoculated, but neither they produced any type of disease symptoms nor the virus could be recovered on back inoculation to test plants.

Seed transmission of virus in sunnhemp plants, infected as seedlings, ranged from 5-20%. Virus was also found to be seed borne at a rate of 5 to 10% when plants were infected before flowering.

The insect vectors, if any, could not be found. *Myzus persicae* Sulz., *Aphis gossypii* Glover, *Aphis craccivora* Koch. and white flies, *Bemisia tabaci* Gen, did not transmit the virus.

The virus in undiluted buffered sap was inactivated at 93°C and at a dilution of 5×10^{-5} . The longevity *in vitro* was 54-56 days at 20-28°C.

A comparison between the host range, symptomatology and physical properties of the present virus and that of other viruses producing mosaic symptoms on Sunnhemp¹⁻¹⁰ revealed that the causal virus did not closely resemble to any of the above viruses. The causal virus of Sunnhemp mosaic²⁻³ has lower dilution end point and thermal inactivation point and shows systemic reaction in various hosts. The virus occurring in Lucknow differs from Delhi strain in producing more severe symptoms on sunnhemp and in showing hypersensitive reaction in a few hosts.

Apparently, this is an undescribed disease of sunnhemp and appears to be caused by a severe strain of Sunnhemp mosaic virus.

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REVIEWS AND NOTICES OF BOOKS

Energy (Vol. II). *Non-nuclear Technologies*. By S. S. Penner and L. Icerman. (Addison-Wesley, Pub. Co., Inc., Mass. 01867), 1975. Price : \$ 19.50 (Hardbinding), \$ 13.50. Paperbinding.

The book under review is the second of a three-volume set on "Energy" and deals with non-nuclear Technologies. The topics covered are restricted to those aspects of non-nuclear energy technologies with new developments, especially in the U.S.A., which promise to bring important modifications to their energy supply base. Well-developed technologies are not reviewed.

The book is divided into twelve chapters—Chapters 9 to 20, the first eight chapters forming the contents of Volume 1.

Chapter 9 deals with the technological and economic aspects of oil recovery from tar sands

and oil shale, Chapter 10 considers problems associated with the availability, production and transportation of coal, coal gasification, coal liquifaction and *in situ* recovery of coal. Chapter 11 is devoted to the use of hydrogen as an alternative primary energy source. Topics considered include production of hydrogen from water, hydrogen transmission and distribution networks, storage of hydrogen and safety problems connected with hydrogen use. Methanol as an alternative energy source is also briefly considered. Chapter 12 is concerned with energy storage systems such as mechanical energy storage, electrical energy storage, pumped-hydraulic storage, compressed air storage, storage of petroleum, natural gas and synthetic fuels. In Chapter 13 Techniques for Direct Energy conversion are discussed including MHD, fuel cells,