material under the microscope, indicating a change in their usual food preference. Millipedes are known to feed not only upon decaying organic matter, but also, under special circumstances, upon living plant tissue[2]. The juveniles of *J. splendidus*, as they are enclosed in the gall cavity which is isolated from the external environment, have no other way but to feed on the nutritive tissue lining the larval chamber. This supports the view of Baker[2] that the millipedes, under special circumstances, feed upon living plant tissue.

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# SHORT SCIENTIFIC NOTES

## Crystalline Components of *Clerodendron serratum*

*Clerodendron serratum* (L.) M. (Fam.: Verbenaceae) is a shrub with blue flowers, widely distributed in India. The root is used in medicine for fevers, rheumatism and dyspepsia and the leaves as external applications in cephalalgia and ophthalmia[1]. The isolation of D-mannitol from the root bark[2,3] and sapogenins from the bark[4] of this plant has been earlier reported. Subsequently, Rangaswami[5] raised a doubt about the botanical authenticity of this material, and hence the present investigation was taken up.

The roots obtained from Thanjavur (Tamil Nadu), yielded stigmasterol and a pigment, probably a quinone; the latter could not be characterised fully due to paucity of the material. Other constituents were non-crystalline.

The dry leaves of *C. serratum* (collected from Coimbatore) did not yield either stigmasterol or 24 S-ethyl cholesta-5, 22, 25-trien-3-$\beta$-ol[6]. Instead, it was found to contain $\alpha$-spinasterol, m.p. 164-5° (acetate, m.p. 176-8°) identified by comparison with an authentic sample (m.m.p. and $AgNO_3$ impregnated co-TLC). The alcohol extract was found to contain (+)-catechin, luteolin and luteolin-7-0-$\beta$-D-glucuronide, all identified by direct comparison with authentic samples. We could not detect any mannitol in either of the materials studied.

We thank Mr. T. S. Srinivasan, Pharm Products, Thanjavur and Dr. J. Joseph, Botanical Survey of India, Coimbatore, for the genuine plant materials, Dr. S. K. Nigam, National Botanic Gardens, Lucknow, for authentic $\alpha$-spinasterol and the Principal, JIPMER, for encouragement.

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## Transfer of Restorer Genes Over a New Genetic Background in Sunflower (*Helianthus annuus* L.)

Genetic male sterility in sunflower was first recorded in 1935 and in the subsequent years several reports have appeared. Recently, cytoplasmic male sterility was reported[3] in the back cross progenies of *Helianthus petiolaris* × *H. annuus*. The cytoplasmic male sterile line, 2 cm 183, its maintainer and the restorer line, BCZ 111 were obtained in 1973. The restorer line was very weak, stunted (about 30 cm) and possessed flower heads of about 6 cm diameter. Thus, it was not useful for the commercial hybrid seed production. Also, the hybrids derived from the cross, 2 cm 183 × BCZ 111 were in no way superior to the female

parent. This cross was, however, helpful for the understanding of the genetic basis of fertility restoration The segregation of $F_2$ generation, more closely approximated a 9 : 7 ratio, with two independent complementary dominant genes controlling restoration. Details are reported elsewhere.

The collections of sunflower cultures of Russian Canadian, Bulgarian and Romanian origin, available in this department, were tested for the restoration capacity, but none of them was found to possess the restorer genes. It has, therefore, become inevitable to transfer the restorer genes of BCZ 111 over a new genetic background. Since emasculation in sunflower is almost impossible, the male sterile hybrid of 2 cm 183 × E C. 68415 was utilised as the female parent for the transfer of restorer genes from BCZ 111. The resultant hybrid of the triple cross, (2 cm 183 × E.C. 68415) × BCZ 111, was male fertile. The second generation consisted of both male sterile and fertile plants. From the male fertile section, vigorous plants closely resembling E C. 68415 were selected and their fertility restoration capacity was tested in crosses with 2 cm 183. Majority of the tested plants have turned out to be either partial or complete restorers and some of them yielded vigorous hybrids. Thus, the transfer of restorer genes on to a new genetic background in sunflower has been achieved. Combining ability studies of crosses involving these derived restorers with 2 cm 183 male sterile line are in progress.

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**Effect of Altozar, A Juvenile-Hormone Analogue, on *Coccinella septempunctata* Linnaeus**

Altozar (ZR–512) is an effective growth regulator of the aphids. Recently, the authors found it very promising against the mustard aphid *Lipaphis erysimi* (Kaltenbach). Its safety to the final-instar grubs of *Coccinella septempunctata* Linnaeus, an important predator of this apid, was investigated. Thirty final-instar grubs were sprayed with 0·5 ml of 0·5% Altozar in acetone. These were fed on untreated mustard aphids. Another group of 15 untreated final-instar grubs was fed daily on aphids sprayed with Altozar at the said dose Fifteen final-instar grubs which were sprayed with 0 5 ml acetone and offered untreated aphids served as control. In all the treatments the grubs pupated but amergence was only 13% in the first treatment and nil in the second treatment as against 67% in the control. No deformity was apparent in the grubs, pupae and adults, but Altozar definitely affected the development and caused mortality at the pupal stage. Bagley and Bauernfeind (1972) reported that *Chrysopa*, Hemipterous predators, Coccinellids, *Apanteles* and *Trichogramma* showed morphogenetic responses to the juvenile-hormone analogues, Roeller's and Bower's compounds.

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**A New Name for *Brachygrammatella indica* Khan (Hymenoptera: Trichogrammatidae)**

*Brachygrammatella aligarhensis* Nom. n.

*Brachygrammatella indica* Khan, 1975, *Curr. Sci.*, **44**: 430. (Preoccupied by *Brachygrammatella indica* Viggiani and Hayat, 1974, *Boll. Lab. Ent. Agr. Portici* **31**: 150).

Viggiani and Hayat (1974) described the species *Brachygrammatella indica* which was reared from the eggs of *Oxyrachis* sp. at Manmad, Maharashtra. Later, Khan (1975) described another species under the same name *Brachygrammatella indica* which was reared from *Oxyrachis tarandus* Fabr. at Aligarh, Uttar Pradesh. Thus, *Brachygrammatella indica* Khan becomes a junior primary homonym of *Brachygrammatella indica* Viggiani and Hayat. Therefore, a new name *Brachygrammatella allgarhensis* is proposed for *Brachygrammatella indica* Khan, 1975 (nec. Viggiani and Hayat, 1974).

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**Mycoflora Associated with Melon (*Cucumis melo* L.) Seeds**

In the present work external and internal mycoflora of seeds of *Cucumis mejo* L. has been studied.

For the external mycoflora, the unsterilized seeds were plated on blotter paper and potato-dextrose-agar medium separately (ISTA, 1966) In order to detect the internal seed borne fungi, surface sterilized seeds were dissected and the testa, the cotyledons and the axis were plated separately on blotter paper and potato-dextrose-agar medium and incubated at 25° C

The 17 fungal isolates obtained and identified are:

*Aspergillus flavus* Link ex Fries, *A. niger* Van Tieghem, *A. terreus* Thom., *A. sulphureus* (Fres.) wehmer, *Cladosporium herbaram* (Pers ) Link. and *Penicillium* sp. were found in ecto and endophytic association.

*Aspergillus flavns, A. niger, A. terreus, A. tamarii* Kita, *A. versicolor* (Vuill.) Tiraboschi, *A. sulphureus*, *Alternaria tenuis* Nees., *Chaetomium globosum* Kunze & Schm., *Cladosporium herbarum* (Pers.) Link., *Penicillium* sp., *Curvularia* sp., *Helminthosporium* sp., *Fusarium* sp., *Monocillium* sp., *Molnilia* sp., *Cunninghamella* sp., and *Mycelia sterila* were found in endophytic association with seeds.

*Aspergillus flavus, A. terreus, Cladosporium herbarum* and *Penicillium* sp. were found associated with seed coat, cotyledons and axis of seeds.

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**Concerning Fungi and Actinomycetes of Rock Encrustations**

Although abundant literature is available regarding isolation of fungi and actinomycetes from different habitats, there appears to be little data on the flora of these microorganisms from the dry barren mountainous rock encrustations. It is the purpose of this study to obtain such information.

During October 1973, samples of the barren rock encrustations from the Himalayan mountain at an altitude of 2833 m near Shillaroo (Himachal Pradesh) were collected with sterile precautions in presterilized polythene bags and brought to the labcratory for isolations. The soil-dilution-plate technique was employed. Fungi were isolated using Martin's medium (Martin, 1950), and actienmycetes with starch-casein mecium (Kuster and Williams, 1964). Incubations were made for 7 days at 24 ± 1° C for fungi and 29 ± 1° C for actinomycetes. The diserete colonies from the plates were transferred on fresh media and pure cultures were obtained.

The species of fungi included *Aspergillus niveus* Blochwitz, *A. terreus* Thom, *A. ustus* (Bainier) Thom and Church, *A. versicolor* (Vuillemin) Tirab., *Botryotrichum piluliferum* Sacc. and March., *Chaetomium globosum* Kunze, *Claadosporium* sp., *Karnia* sp., *Papulospora* sp , *Penicillium citrinum* Thom, *P. variabile* Sopp, *Scobllcobacidium constrictum* Abbott and *Sepedonium* sp.

The species of actinomycetes found were, *viz., Streptomyces* sp., *S. griseoflavus* (Krainsky) Waksman and Henrici, *S. griseus* Waksman and Henrici, *S. olivaceous* (Waksman) Waksman and Henrici and *S. ramulosus* Ettlinger, L., Gaumann, E., Huter, R., Neipp, L., Prelog, V. and Zahner, H.

The presence of these micro-organisms under such unfavourable growth conditions is noteworthy.

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**Foot and Bulb Rot of *Ornithogalum virens***

During the September–November period of 1973 and 1974, a severe foot and bulb rot of *Ornithogalum virens* L., an ornamental plant, was observed on the Campus of S.V. University, Tirupati (A.P.). The disease incidence was high at the seedling stage. With age, the plants appeared to be less susceptible.

To begin with, the water-soaked spots, (2–3 mm dia) were observed at the foot of the infected plants. Subsequently, the spots enlarged coalesced and turned necrotic, encircling the foot region as a result of which the aerial part of the plant collapsed. This was followed by the complete rotting of the bulb within 10-12 days. At this stage clusters of dark brown sclerotia (1–2 mm in dia) were seen on the surface of the rotting bulb.

The causal organism was isolated from the diseased tissue and its pathogenicity established. Reisolations from the inoculated plants yielded the fungus similar to the parent culture. The fungus was identified as *Sclerotium rolfsii* Sacc.

Host range studies were conducted employing one month old seedlings of *Allium cepa* L., *A. sativum* L., *Gloriosa superba* L., *Chlorophytum* sp., *Sansevieria roxburghiana* Thunb. *Scilla indica* L. and *Asparagus racemosus* L., all of which belong to the same family

Lilliaceae. The disease symptoms were observed only in *Chlorophytum* sp., *Sansveria roxburghiana* and *Scilla indica* and within 3–5 days after inoculation. The foot and bulb rot of *Ornithogalum virens* incited by *Sclerotium rolfsii* is a new record for India.

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**Occurrence of *Ephelis oryzae* Syd. on Pearl Millet**

During the *Kharif* season of 1975, a crop of pearl millet, *Pennisetum typhoides* (Burm.) Stapf. and Hubb. variety HB–3, was grown besides a fox tail millet, *Setaria italica* Beauv., the crop was affected with *Ephelis oryzae* Syd. A single earhead of pearl millet bordering fox tail n illet crop showed symptoms sinilar to that of *Ephelis* infection. The florets in the lower half of the affected head were grayish and found glued and pressed towards the rachis. Microscopic examination of the fungus revealed the spores to be acicular hyaline and measured 15·3–24·3 × 1·4–1·8 $\mu$ with an average length of 19·26$\mu$ which were very close as to the spore size of *E. oryzae* on *Setaria italica* as reported by Venkatakrishnaiah (1952). Govindu and Thirumalachar (1961) have recorded *Ephelis* on *Pennisetum hohenackeri* Hocst and *P. alopecuras* Steud. has been reported as a host of *E. oryzae* by Misra and Pall (1975). There is no report of *Ephelis* sp. on *Pennisetum typhoides*. Based on the spore dimensions, *P. typhoides* is considered as a new host of *E. oryzae* from India.

The specimen is deposited in the mycological herbarium of the Department of Plant Pathology, University of Agricultural Sciences, Bangalore (Mysp # 1958).

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**Leaf Spot Disease of *Rauwolfia serpentina* Caused by *Corynespora cassiicola* (Berk. & Curt.) Wei from Manipur**

A severe leaf spot disease was observed during August 1975 on the older leaves of a potted plant of *Rauwolfia serpentina* (Linn.) Benth. ex. Kurz. (Apocynaceae) in the Botany Garden, D.M. College, Imphal, Central Manipur District, Manipur State. The disease manifests itself in the form of deep dark brown spots with distinct concentric rings, 1–16 mm. in diameter. Infection starts from the margin rarely at the midrib, more at the apical portion, lower surface faint dark tan with concentric Zones surrounded by brownish yellow margin. Number of spots per leaf varies (11–18). occasionally spots enlarged and coalescenced forming bigger patches.

The pathogen was isolated in pure form from the infected spots on Czapek's agar and identified[1–4] as *Corynespora cassiicola* (Berk. and Curt.) Wei. Pathogenicity of the fungus was successfully proved by spraying the spore suspension on the healthy injured leaves of the host. Uninjured leaves inoculated with the fungus did not produce spots.

Available literature[6–7] shows that the fungus was not obtained earlier from *R. serpentina* and hence this is the first record of the fungus for Manipur. Two of the infected leaves have been deposited at C.M.I., Kew, Surrey, England, as IMI. No. 196571.

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