SHORT SCIENTIFIC NOTES

Serum Alkaline Phosphatase Isoenzymes in Non-Laying White Leghorn Birds

Five serum alkaline phosphatase isoenzymes AKp–1 to AKp–5 including AKp–5^S (slow migrating) or AKp–5^F (fast migrating) in the order of decreasing electrophoretic mobility in laying White Leghorn birds was earlier described by the authors[1]. Savage *et al.*[2] (1970) reported that a band appeared in polyacrylamide gel electropherograms between fast and slow serum alkaline phosphatase isoenzyme in non-laying Japanese quail. No such report on serum alkaline phosphatase isoenzymes in non-laying White Leghorn is available in the literature.

The genetic variation of serum alkaline phosphatase isoenzymes was studied in fifty, clinically normal, White Leghorn pullets at five months of age by polyacrylamide disc electrophoresis[3], using *tris* boric acid EDTA buffer[4] (pH 8·8) at 150 volts, 4° C for 75 min. All gels were stained in freshly prepared staining mixture[5] at 37° C for one hour.

The pullets had a different serum alkaline phosphatase zymogram as compared to laying birds. In pullets the slow moving serum alkaline phosphatase isoenzyme (AKp–5^S) was absent, and a new band appeared, narrow in width, as a simple straight line which was located midway between the position of the original slow band and fast band. This new band having a greater electrophoretic mobility than the slow band (AKp–5^S) but less than the fast band (AKp–5^F) was characteristic of pullets, and has been designated as AKp–5^P.

Department of Physiology and Biochemistry,
College of Veterinary Science and Animal Husbandry,
Chandra Shekhar Azad University of Agriculture and Technology,
Mathura Campus (U.P.), India,
December 23, 1975.

A. K. JAIN.
J. S. RAWAT.
S. C. JOSHI.

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Nuclear Polyhedrosis of *Plusia chalcytes* Esp. Infective to *Plusia peponis* F.

Nuclear polyhedrosis of *Plusia chalcytes* Esp. has been reported by Laudeho and Amargier (1963). Rabindra *et al.* (1975) reported the incidence of nuclear polyhedrosis in *P. chalcytes* Esp. from India. The gourd semilooper *Plusia peponis* F. has also been found to be infected with a nuclear polyhedrosis virus by Rabindra and Subramaniam (1975). The present communication deals with the nuclear polyhedrosis of *P. chalcytes* infective to *P. peponis*.

With a view to finding out the cross infectivity of nuclear polyhedrosis virus of *P. chalcytes* to *P. peponis*, 50 third instar larvae of *P. peponis* were allowed to feed on snake gourd leaves dipped in a heavy suspension of polyhedra of *P. chalcytes*. The larvae were fed with treated leaves for three days consecutively and with untreated leaves from the fourth day onwards.

It was found that the virus was infective to *P. peponis* though the mortality rate was only 40%. The incubation period was found to vary from 6–10 days. The signs and symptoms like change of colour from green to greenish white and rupturing of integument was noticed in *P. peponis* also as observed in *P. chalcytes*. The virus after a single passage through *P. peponis* was infective to the original host, *P. chalcytes* on inoculation and there was no decrease in the virulence of the virus. The virus without passage through *P. peponis* causes about 81% mortality in third instar larvae of *P. chalcytes* with an incubation period of 5–6 days.

It was noticed that the polyhedra retained the original triangular shape after passage through *P. peponis* (Fig. 1). Diameter of 50 polyhedra of *P. chalcytes* was found to vary from 0·64 μ to 1·35 μ with a mean of 0·98 $\mu \pm 0{\cdot}01$ and after passing through *P. peponis* once, 50 polyhedra measured 0·66 μ to 1·68 μ in diameter with a mean of 1·05 $\mu \pm 0{\cdot}04$. The retention of original shape and size of polyhedra after passage through *P. peponis* supports the positive results obtained. The inclusion bodies of nuclear polyhedrosis of *P. peponis* was found to be roughly hexagonal in shape (Fig. 1) with a diameter ranging from 0·64 μ to 2·32 μ with a mean of 1·25 $\mu \pm 0{\cdot}05$. According to Gershenson (1955), the characteristic shapes and mean size of polyhedra are determined exclusively by the properties of the virus, and not by those of the host,

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Dept. of Entomology, Agricultural College and Research Institute, Coimbatore 641 003, *April* 2, 1975.

R. JEBAMONI RABINDRA.
T. R. SUBRAMANIAM.

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* Original not seen.

The Scab Fungus [*Venturia inaequalis* (Cke.) Wint. on Apple Twigs in Kashmir

Recent surveys of apple orchards of Kashmir Valley to record scab incidence have revealed the occurrence of a new phase of the disease in the form of twig infection, which was hitherto unknown in India. Usually, the scab fungus infects leaves and fruits, and only in rare cases it may infect the twigs. Since the disease has assumed serious proportions in the last 2–3 years affecting almost all the apple varieties and spreading to all the apple growing areas of the three districts (Anantnag, Baramulla and Srinagar) of the Valley (Gupta and Lele, 1975), the presence of twig infection further highlights seriousness of the disease and gravity of the problem. The conidia developing in lesions on twig in spring may act as yet another source of primary infection as the ascospores produced in perithecia on overwintering leaves already known in other countries like the U.K., Israel and the European continent (Gupta, 1975).

The typical scab symptoms were observed on 1–3 years old twigs on a few apple trees of an unknown variety at Vehil (Shopian area) in June 1975. The lesions were mainly small, raised, cinnamon brown in colour with the peeling of the upper surface at the points of emergence which had silvery grey appearance. The irregular fissures covered the affected surfaces, and at places where the infection was found severe, the lesions appeared to coalesce. The infection had also resulted in the breakdown of the epidermal cells below. Microscopic examinations (the exposed surface of the lesions which were olive green to black in colour) revealed the presence of ovate to obclavate and truncate-based characteristic conidia. These were produced in indefinite numbers from each conidiophore which were annular and shades of brown. The conidiophores had arisen from the more compact stroma developed underneath the cuticle. The fungus was identified in its imperfect state as *Spilocaea pomi* Fr.

There is, therefore, an urgent need for domestic quarantine procedure to avoid the pathogen getting introduced through nursery stock from Kashmir to other hilly states, which so far, are free from this scourge of apple.

Division of Mycology and Plant Pathology, Indian Agricultural Research Institute, New Delhi 110 012, *January* 14, 1976.

G. K. GUPTA.
V. C. LELE.

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A New Record of *Navicula terebra* Iredale

As far as is known from the literature, only a shell of *Navicula terebra* Iredale[1] is recorded from Low Isles of Great Barrier Reef, Australia. The author came across several live specimens of this species attached to pieces of dead corals on Ajad Island (Lat. 22° 22′ 24″ N : Long. 69° 19′ 48″ E). The specimens measure on an average 8·5 mm in length, 6·0 mm in height and 3·0 mm in depth.

The present record adds a new species to the conchofauna of India. Two specimens of this species are deposited in the Museum of Marine Biological Research Station, Port Okha.

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Marine Biological Research Station, Port Okha, *July* 3, 1976.

M. I. PATEL.

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Sour Rot of Guava in India

A fruit rot of Guava (*Psidium guajava* L.) has been noticed in October, 1974, from orchards of College of Agriculture, Nagpur. The fungus has been identified as *Geotrichum candidum* Link ex Pers[1]. This isolate differs from the isolate of the same fungus[2], obtained from mandarin orange[3], in spore

size, growth characteristics, virulence and in some physiological properties. When inoculated, the fungus produced typical symptoms of the sour rot in wounded ripe guava fruits. Mandarin orange, lemon, lime, sweet orange, banana, apple, tomato; grape-vine, watermelon, muskmelon, cucumner fruits and tubers of potato were found to develop disease symptoms on artificial inoculation with the fungus. A careful survey of literature revealed that sour rot of guava has not been yet recorded from the guava fruits on the tree.

Microbiology Laboratory, K. V. SHANKHAPAL.
Department of Biochemistry, V. G. HATWALNE.
Nagpur University,
Nagpur, India, *July* 1, 1976.

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Low Frequency Occurrence of the White Lac Variant in Natural Populations of *Kerria lacca* (Kerr)

The white lac variant was first recorded in a F_4 progeny from a cross of two distinct races of the common Indian lac insect *Kerria lacca* (Kerr)[1]. Two of the eight wild stocks of *K. lacca* maintained at this Institute have shown the occurrence of the white lac insect in frequencies ranging between 0·0005 and 0·001. Since deleterious recessive mutations are maintained at low frequencies in natural populations due to the combined action of mutation and selection, the white lac insect may also prove to be a recessive mutant with a selective disadvantage in its natural environment, which could reduce its utility as an insect of commerce and also as a marker gene in these insects.

Division of Entomology, N. S. CHAUHAN.
Indian Lac Research Institute,
Namkum, Ranchi, Bihar, *May* 12, 1976.

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Occurrence of *Alternaria brassicae* (Berk.) Sacc. on *Medicago sativa* L.

A severe 'leaf-spot' disease of alfalfa (*Medicago sativa* L.) plants was observed in September 1975. in the University Botanical Garden. The disease was noticed when the plants were six weeks old mostly on the older leaves.. Affected plants showed numerous purplish-black zonate lesions of the leaves. At the initial stages, small yellowish-brown spots are observed and soon gets enlarged. As the lesions enlarge in concentric circles, they get covered with dark sooty mould, which is easily rubbed off. Repeated isolations from these infected leaves on PDA yielded *Alternaria brassicae*. Pathogenicity studies confirmed the identification of the fungus. The culture has been deposited in the culture collection of Botany Department, Marathwada University, Aurangabad.

The fungus is known to attack mustard, cabbage, cauliflower and other Brassicaceae members[1,2]. However, there is no record of this fungus on alfalfa and this is a new host record.

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Botany Department, G. V. UMALKAR.
Marathwada University,
Aurangabad 431002,
and
Hema Villa, 4 Rose Lane, K. M. ARUN NEHEMIAH.
Richmond, Bangalore 560025,
June 25, 1976.

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New Record of Predatory Mites on Mango Mealy Bug, *Drosicha mangiferae* Green (Margarodidae: Hemiptera)

During the survey conducted on natural enemies of insect pests of mango, two species of mites *viz.*, *Leptus* sp. and *Bochartia* sp. (Erythraeidae : Acarina) were found predating on nymphs and adults of *Drosicha mangiferae* Green in a mango Orchard at Maliahabad, Lucknow (U.P.). Later on, these predators were also recorded from other orchards in the adjoining area, highly infested with mealy bugs. Mites of both species are reddish, oval shaped, with long, six segmented, slender legs and body covered with hair like setae. Number of mites (larvae + nymphs) predating on single mealy bug ranged from 1–60. While feeding, the mites keep on tapping the body of bugs with first pair of propodosomal legs and shaking the rest with backward motion. At the point of insertion of chelicerae, the body becomes blackish while the surrounding area starts turning pale. Because of the excessive sucking of haemolymph the body gets shrivelled and the colour becomes brownish black. The mites migrate to other healthy bugs before the first prey dies and victimise them.

From January to May mites are active and all stages are found. From May onward, the adult mites migrate to soil and remain there in diapause till December. Samples of *D. mangiferae* collected from different orchards showed that 15–20% were having mites. There is no previous record of these mites as predator on *D. mangiferae* in literature, although five species of *Leptus, I.e., Leptus giganticus, Leptus poonaensis, Leptus indicus, Leptus ovatus* and *Leptus villosus* have been collected from citrus, fig and soil debris and *Bochartia* sp. has been reported predating on *Bagrada cruciferarum* KirKaldy (Khot, 1964 and Thakur *et al.,* 1969).

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Central Mango Research Station, (I.I.H.R.), B-53, Sector-A, Mahanagar, Lucknow 6 (U.P.),
May 18, 1976.

P. L. TANDON.
BECHE LAL.

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A Leaf Spot Disease of *Crotolaria juncea* L. Caused by *Stachybotrys atra* Corda

During the survey (September and October, 1973) of *Crotolaria juncea* in cultivated fields, a number of leaves were found infected with typical spots. The spots appeared as pale yellow turning to dark brown in colour and 5 mm in diameter. The fungus was isolated from the infected leaves on potato dextrose agar (D.D.A.) medium at 30° C. Hyphae in culture were hyaline, septate, 4–5·5 μ (dia.) with conidiophores. On the host tissue, conidiophores arise from the aerial mycelium in late September. Conidiophore bears phialides. Conidia black, smooth, elliptical, with oil drops, 8–15 μ long.

For pathogenecity test of the fungus, the spore suspension in sterile water was sprayed on healthy plants in the glass house. The inoculated plants were covered with polythene bags for 48 hours and the control maintained simultaneously. The leaves of the inoculated plants showed typical symptoms after 7 days of inoculation. Reisolations from the leaves of the artificially inoculated plants yielded the same pathogen with identical characters and identified as *Stachybotrys atra* Corda.

The fungus *S. atra* causing leaf spot disease of *Crotolaria juncea* is a first record. The culture deposited in C.M.I., England (IMI, 197813).

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Department of Botany, Agra College, Agra,
and
Schools of Studies in Botany Jiwaji University, Gwalior,
May 14, 1976.

P. D. PATHAK.
R. K. S. CHAUHAN.

Balansia claviceps on Two New Hosts from Karnataka

The genus *Balansia* Speg. and its conidial stage *Ephelis* Fr. are important parasitic fungi occurring on grasses and cereals, widespread in tropics especially in India. The monographic studies on this important and interesting group of fungi have been made by Govindu and Thirumalachar (1961, 1963, 1973). In the present studies, two-additional hosts for *B. claviceps* have been reported.

Govindu and Thirumalachar (1963) reported *B. claviceps* on inflorescence of *Cyrtococcum oxyphyllum* and the present record on *C. trigonum* (Retz.) *A. camus* is a new host record. Ephelidial stage on inflorescence of *Isachne elegans* Dalz., referred to tentatively as *E. oryzae* Syd. was reported by Venkatakrishnaiya (1946). However, no *Balansia* stage has been reported on this host or related species. The present instance of *B. claviceps* on *I. dispar* Trin. is a new host record and also a new distribution. The two specimens are deposited in the Agricultural College mycological Herbarium bearing Accn. No. 1938 and 1976.

University of Agricultural Sciences, Bangalore 560 024,
April 30, 1976.

H. C. GOVINDU.
N. SHIVANANDAPPA.

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