SHORT SCIENTIFIC NOTES

Isolation of Carpesterol from the Fruits of *Solanum torvum*

Solanum torvum (Family : Solanaceae), a useful Indian medicinal plant has been earlier studied for its chemical constituents[1-3]. The present work records the isolation of carpesterol for the first time from this plant.

Shade dried fruits were extracted with hot 80% ethanol under reflux. The ethanol concentrate was repeatedly shaken with benzene, ether and ethyl acetate. The benzene soluble portion on elaborate column chromatography over neutral alumina yielded in benzene : pet. ether (3 : 1) eluate, a pure compound (0·05% yield), m.p. 245–7°, $[\alpha]_D$ + 61·5° (chf) and M.F. $C_{37}H_{54}O_4$. It gave positive Liebermann–Burchard and Salkowski tests and formed an acetate, m.p. 187–9°. This sterol was identified as carpesterol by direct comparison with an authentic sample by m.m.p., co-TLC (silica gel impregnated with $AgNO_3$) and

The other fractions yielded a low melting solid (m.p. 62–4°), and β-sitosterol (m.p. 131–3°).

Though carpesterol was isolated, four decades ago from *S. xanthocarpum*[4], its structure was only recently elucidated[5]. The present isolation of this sterol from *S. torvum* as a second source may be of some chemotaxonomic interest.

We thank Dr. J. A. Beisler, National Cancer Institute, Bethesda, U.S.A., for the kind supply of an authentic sample of carpesterol, Prof. M. N. Ghosh, and the Principal, JIPMER, for encouragement.

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Note added in proof : Since communicating our work on *S. torvum*, carpesterol has also been isolated by us from the fruits of *S. trilobatum*.

Occurrence of *Macrognathus aculeatus* (Bloch) in the River Cauvery at Mekedatu, Karnataka State

Two Specimens of the Lesser Spiny Eel, *Macrognathus aculeatus* (Bloch) were collected on August 18, 1974, while operating a cast net in the rock-strewn stretch of the river Cauvery at Mekedatu about 60 Km from Bangalore. Identification of the species was confirmed by the presence of 5 ocelli like spots on the dorsal fin. The present species being rare, has not been reported so far from the upper reaches of Cauvery river above Hoginakal falls and in this paper the details of the two specimens are reported.

Of the two specimens collected, one is a juvenile with T.L., 150 mm and 3·5 g in weight and the other an adult female with T.L., 287 mm and 24·5 g in weight. The examination of the gonad of the adult specimen revealed that the fish was in the first stage of maturity. The juvenile specimen of *M. aculeatus* collected from Cauvery river may belong to 1 + age group[2]. The river Cauvery is rock-strewn and shows seven individual falls at Hoginakal and this falls become flush with the rise of about 30 meters in the level of the Mettur reservoir (India), the fish like *Catla catla* and *Pangasius pangasius* can ascend up the river[1]. The occurrence of *M. aculeatus* in the river Cauvery, about 400 Km from the deltaic region strongly suggests that it is capable of ascending very long distances in the river negotiating many water falls, especially during juvenile stages similar to the up-stream migration of elvers of *Anguilla nebulosa labiata* which ascend Tana River in Kenya, overcoming many water falls including a vertical fall of 23 meters[3].

Our thanks are due to Dr. A. R. Kashuri Bai, for her encouragement.

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Additional Host Records of the Root-Knot Nematode, *Meloidogyne incognita* in North India

It is well known that the root-knot nematodes belonging to the genus *Meloidogyne* cause enormous loss to many economically important crops. They have a very wide host range in both cultivated and wild plants. Despite this there might be many more hosts which await the report. Hence, a survey was done in the Aligarh District (North India) for host range and host susceptibility of the prevailing species of the nematode. The specific identification was done by close examination of the perineal patterns of mature females, taken out from galled tissues of roots. Hot acid fuchsin (0·01%) and lactophenol were used as staining and mounting materials respectively. The species attacking all the plants, reported here, was found to be *Meloidogyne incognita* (Kofoid and White 1919) Chitwood, 1949. The root-knot infection was rated as + = light (1–25%), ++ = moderate (26–50%), +++ = heavy (51–75%) and ++++ = severe (76–100%) on the basis of percentage of roots infected as suggested by Smith and Taylor[10]; and the size of root galls recorded as small (S), medium (M) and large, (L), All the plants listed below are new host records of *M. incognita* which have not been reported earlier[1–9,11]:

New host records: *Acacia arabica* Willd. (+ ; S) *A. farnesiana* Wall. (+; S), *Calotropis procera* Bry. (++; S, M), *Cassia occidentalis* L. (+; S), *Centaurea cyanus* L. (++: M, S), *Fumaria parviflora* Lamk. (+; S), *Hibiscus rosa-sinensis* L. (++; S) *Ipomoea carnea* Facq. (++; M), *I. eriocarpa* R. Br. Prod. (+++; M), *Launaea asplenifolia* Hook. (++; S, M), *Portulaca quadrifida* L. (++; M, S), *Rumex hastatus* Don Prod. (+; S), *Sida cordifolia* L. (++; S, M), *Spinacia oleracea* L. (++++; L, M), *Vicia hirsuta* (L.) Gray. (+++; M).

First report from India: *Antirrhinum majus* L. (++++; L), *Cichorium intybus* L. (+; S).

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***Neoascaris vitulorum* Larvae in the Colostrum Milk of Buffaloes**

Neoascaris vitulorum infection was found in 26% (64 out of 224) buffalo calves below the age of 6 months on the basis of their faecal examination. Some workers have recently reported that the passage of infective larvae of certain nematode parasites through the colostrum/milk of infected dams forms an important and in some cases a major source of infection for their new-born calves[1–4].

One hundred and eighty-seven milk samples (250 ml. each) were collected for examination from 37 buffaloes, 1–30 days after parturition. The milk was collected from all the four quarters after thoroughly washing the udder and the teats. Four buffaloes, out of 37 were found positive for the presence of *N. vitulorum* larvae in their milk from 1–11 days after parturition. The larvae resembled those of *N. vitulorum*, except that they were twice the size of the normal infective larvae which is in agreement with the observations of Warren (1969)[3]. They were in an advanced stage of development, as evidenced by their morphological structures, which may explain their early maturity to adult worms in young calves, as early as 7 days after birth[5].

The faecal examination of buffaloes, excreting larvae in their milk, remained negative throughout, while their calves became positive for *N. vitulorum* eggs, from 27–42 days after birth. The passage of eggs in the faeces of young buffalo calves from positive dams confirms the transmammary route of infection for this parasite.

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Leaf Blight of Cotton Caused by *Macrophomina phaseolina*

During August and September 1975 a hitherto unknown leaf blight and leaf spot of cotton was observed in Haryana Agricultural University Experimental Farm. Blight symptoms were characterised by yellowing or browning of leaves which invariably initiated from apical ends and was followed by impregnation with minute dot like pycnidia. There was no pronounced demarcation between blighted and healthy lamina. Leaf spots were mostly confined to margins of the leaves. They were elongated and confluent with dark coloured border separating them with healthy tissue. The infected lamina were densely studded with fungal pycnidia as in case of leaf blight described above. Both types of symptoms were sometimes observed on the same leaf.

Microscopic examination of the pychidia from blighted and spotted leaves revealed the causative fungus as *Macrophomina phaseolina* (Tassi) Goid. Isolations from infected tissues also consistantly yielded its sclerotial form *Rhizoctonia bataticola* (Taub.) Butler, which is characteristic of this pycnidial fungus. Pycnidial formation in culture has, however, been reported recently by Chidambaran and Mathur[1], under specialisaed condition.

Pathogenicity of the fungus was confirmed ky spraying conidial suspension prepared by homogenising pycnidia from infected leaves as well as by inoculating the leaves with sclerotial agar bit taken from young vigorously growing culture, which after placirg on the leaves was moistened with a cotton pad. Leaves inoculated above were enveloped with polythene bags atleast for 48 hours for retention of humidity around such leaves. Symptoms were observed 5 days after inoculation either of the methods. Pycnidia on such leaves, however, appeared 12 days after inoculation. Isolations from such leaves yielded sclerotial form of the inoculated pathogen *i.e., Rhizoctonia bataticola.*

Macrophomina phaseolina is a pathogen of world-wide importance and has been reported chiefly to cause root rot and stem rot of many hosts. In recent years it has been reported to attack foliage of colocassia[2], urid[3], straberry[5], and mung[7], but so far there is no previous report of this fungus affecting cotton leaves and the occurrence of its pycnidia over infected lamina. The fungus is, however, well known to cause root rot of cotton in India and its pycnidia too have been observed on naturally affected cotton stems by Sunderaraman[8] and Kulkarni *et al.*[4]. Leaf blight and leaf spot of cotton incited by *Macrophomina phaseolina* and manifestation of its pycnidia over infected lamina, reported in this communication is, therefore, the first report from India or elsewhere.

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October 9, 1975.

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Regeneration of Tail in *Caloosia heterocephala* n.sp. (Nematoda: Hemicycliophoridae)

The tail in *Caloosia heterocephala* n.sp. (Rao and Das, 1975)[1] is filiform with a pointed tip in both males and females. In the males, the caudal alae are crenate and extend upto near the tail tip. The tail measures 195–202 μ in females and 84–110 μ in males. In routine survey of upland rice soils *C. heterocephala* with blunt tails were occasionally encountered. In *Hoplolaimus* spp. (Nematoda: Hoplolaimidae) heteromorphism of tails has been reported earlier[2,3]. Since the frequency of *C. heterocephala* with heteromorphic tails was rare in the fields, it was suspected that the blunt tailed specimens could be due to regeneration of the lost tails.

With a view to investigating the regeneration, 50 females of *C. heterocephala* were colonised in distilled water to which was added 0·01% Streptomycin sulphate. Amputation of tails was conducted with sterilised occular scalpel in a sterilisation chamber. The tail was cut off at a distance of abour 50 μ from tip. Following the amputation, 32 individuals revived and were active. The tails assumed conoid and blunt shape on the third to fifth day after amputation. Inoculation to rice roots (1) confirmed the ability of these nematodes to invade the root meristem. The abilty of *C. heterocephala* to

regenerate damaged tail, a new report on the behaviour of this nematode, indicate that dimorphism of tails did not exist in fields.

Central Rice Research Institute, Cuttack 753 006, *November* 28, 1975 — J. SATYANARAYANA PRASAD.

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A Non-Citrus Host for Citrus Mosaic Virus

A mosaic disease of sathgudi [*Citrus sinensis* (L.) Osb.] from Andhra Pradesh has been described by Reddy *et al.*[1] This note reports successful transmission of citrus mosaic to a non-citrus host *i.e.*, *Hibiscus rosasinensis* (L.).

Six plants of *H. rosasinensis* were graft-inoculated using the inoculum from original citur mosaic by leaf patch grafting. One square centimeter of mosaic infected leaf was introduced into the test plant liftin the bark flap. Immediately after this, the bark flap was sealed with alkathene tape. All the plants exhibited perceptible mosaic symptoms similar to sathgudi mosaic after an incubation of 10 months. Using the inoculum from these, *H. rosasinensis plants* graft-inoculations were done on 4 plants of *H. rosasinensis* and 4 sathgudi plants. Mosaic symptoms were observed in both the best varieties. The control plants remained normal. This is the first report of a non-citrus host for citrus mosaic virus.

Citrus Die-back Project, S.V. Agricultural College, Tirupati–517502, A.P., *November*, 4, 1975 — V. DAKSHINAMURTI. G. SIDDALINGA REDDY.

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Leaf Blight of Cowpea (*Vigna sinensis* Endl.) Caused by *Sclerotium rolfsii* Sacc.

Mortality upto 20% of 5–10 day old seedlings of Co. 2 cowpea, an important pulse crop of India was observed in experimental sowings at the Coimbatore Campus of Tamil Nadu Agricultural University due to seedling blight. The first symptoms appeared in the form of minute brown water-soaked dots which expand into small irregular necrotic spots of 2–3 mm size. With the advance of the disease, the necrotic tissues resulted in the formation of shot holes. In severe cases, the entire leaf was as blighted leading to the death of the plants. In some plants, the cotyledonary leaves showed rotting and faild to open leading to the death of the seedlings.

The pathogen was isolated on oats agar medium both from the leaf spot and the blighted lesions. The fungus formed milky white mycelium with characteristic radial growth and sclerotia were produced within a week. The size of sclerotia ranged from 546 to 1092 μ in diameter and it was identified as *Sclerotium rolfsii* Sacc. When seedlings of Co. 2 cowpea were inoculated with the fungus isolated, typical symptoms developed as stated above. The fungus was reisolated from such inoculated infested leaves. Characteristic symptoms were obtained with both, mycelial bit and sclerotial inoculations. Sclerotial inoculations resulted in typical leaf spots.

In addition to *Vigna sinensis*, the fungus was found to be pathogenic on *Arachis hypogaea* L., *Dolichos lab lab*, *Phaseolus aureus*, *Phaseolus mungo* and *Glycine max*, causing similar symptoms within three days of inoculation. Natural infection of *A. hypogaea* and *D. lab lab* by the pathogen was also observed. The isolates obtained from *V. sinensis*, *A. hypogaea* and *D. lab lab* were cross inoculable indicating that the isolates are indentical.

Sclerotium rolfsii is an ubiquitous fungus causing root rot and wilt of a variety of crops.[1]. *S. rolfsii* has been known to cause root and stem rot of *Vigna sinensis* and *Arachis hypogaea* L.[2], But the induction of leaf spot on cowpea has been reported for the first time. However, this fungus has been known to cause leaf spot of Urid (*Phaseolus mungo*) and *Arachis hypogaea*[3,4],

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