

It was noted that the disease incidence was widespread after heavy rains when the weather was humid and warm. Such environmental conditions appear to be conducive for an increased infection potential of the pathogen on susceptible ragi varieties.

The causal organism was isolated on potato dextrose agar in pure culture and its pathogenicity was confirmed on the experimental ragi plants. Seedlings from seeds were raised on sterile sand in 6" size pots. The plants were irrigated with Hoagland's nutrient solution daily throughout the experimental period. One hundred ml of nutrient solution was supplied to the 6 pots, each containing 4 seedlings. Infection could be successfully incited by artificial inoculation of plants with mycelial fragments and young sclerotia. Typical disease symptoms, as observed in nature, were reproduced on the experimental plants after four days of inoculation. The uninoculated plants in control remained healthy.

Fungus on potato dextrose agar produced snowy white profuse mycelial growth which covered the entire surface of medium within 3-4 days. A large number of yellowish brown sclerotia developed in culture after 7 days. On the basis of morphological and cultural characters fungus could be identified as, *Sclerotium rolfsii* Sacc. It is a soil borne pathogen which usually parasitizes vegetable and cereal crops in the infested soils. Importance of

S. rolfsii in pathogenesis of plants has been reported by several workers in the past^{1, 3-6}. McRae² earlier reported the fungus parasitizing ragi in South India. As far as the author is aware, present communication, however, constitutes the first record of *S. rolfsii* parasitizing ragi in Orissa.

The isolate has been deposited with Indian Type Culture Collection (No. 1700) at Indian Agricultural Research Institute, New Delhi.

Among the several fungicides tried *In vitro*, Agalol (0.5%), a mercury fungicide, completely checked the growth of fungus.

Sincere thanks are due to Dr. S. N. Das for taking the photographs of specimens.

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College of Agriculture,
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SHORT SCIENTIFIC NOTES

Some New Records of Grape Vine Mite-Pests and Their Predators in India

So far only three species of mites, viz., *Oligonychus mangiferus* Rahman and Sapra¹, *O. punicae* (Hirst²) and *Tetranychus telarius* L.³ were known to attack grape vines in India. Recently a survey of grape vines of Punjab revealed the existence of another three species of mites which attacked grape vines. Besides, another two species of mites were recorded which were found feeding on these phytophagous mites. The names of the mites, period of occurrence and damage symptoms, if any, are given below.

1. *Brevipalpus phoenicis* (Geij.) (Tenuipalpidae): This mite was present during December to January on the undersurface of leaves near the petiolar base and also on twigs. Due to sucking the plant sap brownish spots

appeared at the points of feeding and the leaves turned yellow. In case of severe injury the affected leaves and twigs dried up.

2. *Eutetranychus truncatus* Estebanes and Baker (Tetranychidae): This mite was in the field during the entire season. The attack was sporadic and was more on "Jaos Belly" variety. All the attacked leaves turned pale yellow.
3. *Eriophyes vitis* (Pags.) (Eriophyidae): This tiny mite was found feeding on the soft tissues of axillary buds during January to February. The incidence was sporadic. No apparent damage symptoms appeared in buds because of feeding.
4. *Pronematus elongatus* Baker (Tydeidae): It was associated with *E. vitis* and probably predatory in nature.

5. *Amblyseius delhiensis* (Narayanan and Kaur) (Phytoseiidae): This is a most efficient predator and fed on all the stages of *B. phoenicis*.

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The Identity of *Aponogeton crispus* Thunb.

Duthie¹ reported two species of *Aponogeton*, viz., *A. natans* (L.) Engl. and Kraus and *A. crispus* Thunb. from the Upper Gangetic Plain. However, van Bruggen² in his revision of the Asiatic and Malaysian species of *Aponogeton* has remarked that *A. crispus* seems to be confined to Ceylon. This has naturally created doubt as to the identity of *A. crispus* reported in Indian floras.

Some material of *Aponogeton* collected from Meerut (a part of Indo-Gangetic Plain of North-West India) and hitherto known as *A. crispus* Thunb. was sent to Dr. van Bruggen for his opinion. He identified it as *A. undulatus* Roxb. and also commented that this is rather a common species in this part of India. Recently the author has also examined the collections of *A. crispus* in the F.R.I. Herbarium, Dehradun, from some other parts of the Upper Gangetic Plain, i.e., Moradabad and Saharanpur in Uttar Pradesh and Chanda in Madhya Pradesh. This material on critical examination turned out to be *A. undulatus*. Thus, it appears that *A. crispus* does not occur in the Upper Gangetic Plain and the earlier reports are based perhaps on mistaken identification. The collections of *Aponogeton* from other parts of the country thus require critical examination as to their correct identity.

Though *A. crispus* is closely related to *A. undulatus*, there are some significant differences which are listed in Table I.

TABLE I

S No.	<i>A. undulatus</i>	<i>A. crispus</i>
1	Tubers globular, obovoid or elongate	Tubers elongate
2	Spikes upto 10 cm	Spikes upto 18 cm
3	Tepals long (more than 5 mm), caducous spatulate or obovate	Tepals small (upto 3 mm) not caducous, broadly obovate
4	Filaments slightly widening towards the base	Filaments strongly widening towards the base
5	Fruit 1½ times as long as thick	Fruit more than 2½ times as long as thick
6	Plumule attached near the base of the embryo	Plumule attached above the middle of the embryo

The author records his sincere thanks to Dr. H. W. E. van Bruggen, Heemkerk, Netherlands, for clarifying certain points as to the identity of the two species of *Aponogeton* and to Mr. K. C. Sahni, F.R.I., Dehradun, for facilities to work in F.R.I. Herbarium.

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Meerut, September 25, 1972.

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Salmonella from Snakes

In recent years, much epidemiological importance has been assigned to the Salmonellae in nature. Many of the free living reptiles have been found to carry Salmonella in their intestinal tract⁴⁻⁶. An attempt was, therefore, made to isolate Salmonella from samples of entrails collected from twenty-four snakes captured in the vicinity of the Dairy, and Poultry Farm of the College, during July 1970 to December 1970.

Modified tetrathionate broth, MacConkey lactose agar and Desoxycholate citrate agar were used for the isolation of *Salmonella* spp. The preliminary identification of *Salmonella* was done on the basis of slide agglutination reaction with polysera, lysis with *Salmonella* specific phage '0-1' and biochemical characteristics. The isolates were finally typed at National Salmonella Centre, Hamburg, West Germany.

Several workers²⁻⁶ have described a high carrier rate of *Salmonella* (upto 30%) among snakes which has led them to presume that these microbes are a part of natural flora in their gut

as commensals. In this study, snake was found to show a carrier rate of 21%.

During the course of this study, three strains of *S. weltevreden* and two strains of *S. champaign* have been isolated from snakes. It is of interest that these snakes were captured from the premises of the College Dairy and Poultry Farm. *S. weltevreden* has been reported to be fairly prevalent in man, domestic animals, poultry, sewage and wild life and *S. champaign* in fowls^{1-5, 7, 8}.

These findings suggest that snakes may play an important role in spreading *Salmonella* infection in nature and thus act as reservoirs.

Thanks are due to Dr. R. Rohde, Director, National *Salmonella* Centre, Hamburg, West Germany, for serotyping and to Major C. V. G. Choudary, Principal, Veterinary College, Mathura, for providing necessary facilities.

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and Animal Husbandry,
Mathura, October 25, 1972.

N.B.—It has been brought to our notice on a personal communication that Dr. V. K. Sharma and his associates have also recently isolated these serotypes from snakes in the Hariyana State.

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A Rare Snake (*Sibynophis subpunctatus*) (Dumeril & Bibron) from Anaimalais

In the course of a recent intensive faunistic survey of Anaimalais I collected two examples of the hill snake, *Sibynophis subpunctatus* (D & B.) (Serpentes : Colubridae) from under-stones in the forest of upper Aliyar, Coimbatore District, Tamil Nadu.

Commonly called 'many-toothed spot-bellied' snake because it has numerous very small teeth in both jaws and by the presence of dark spots on the belly, this snake is harmless and is easily recognised by the colour pattern on the nape : head and nape black with a yellow transverse bar between the eyes and two broad ones bordering the dark colour of the nape ; yellow below with a vertebral series of dots above.

This snake looks very much alike the poisonous coral snake (*Callophis melanurus*) except for the colour of the belly and hence confused often with the latter.

Smith¹ (1943) gives its range as India, south of Lat. 14°, north of Lat. 18°, Nasik District (Bombay), M.P., Bengal and Ceylon. With the recording of these two examples from Anaimalais, it is probable that this species is widespread in the other forests of S. India. This snake is oviparous and lays 2 to 4 eggs at a time. My thanks are due to Sri. J. C. Daniel, Curator, Bombay Natural History Society, for confirming the identity of the specimens.

Zoological Survey of India, T. S. N. MURTHY,
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Madras-4, October 19, 1972.

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Oxalate Nephrosis in an Ewe

An aged ewe, that died after dystokia, showed slightly enlarged and pale kidneys. No other gross lesions were evident in the body. On section the cortex of kidneys was moderately greyish in colour. Histologically, it revealed doubly refractile translucent and pale yellowish shade slab or sheave-like crystals, measuring 10 × 25 microns, mostly in the tubules. When stained with Pizzolate method (Luna, 1968) these crystalline deposits were found positive for calcium oxalate. The tubular cells showed mild to moderate degenerative changes. Liver cells showed early fatty changes, while the other organs showed no cellular changes.

Although oxalate nephrosis has been reported in sheep of Western countries, due to ingestion of certain plants (Smith and Jones, 1966), no such report is apparently seen in India. The owner of this sheep is unable to pinpoint it to any particular plant or other.

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