
SHORT SCIENTIFIC NOTES

Inhibition of Slow Reacting Substance of Anaphylaxis (SRS-A) by a Saponin of *Gardenia turgida**

Treatment for a fortnight with a saponin isolated from the bark of an Indian plant *Gardenia turgida*, has been observed by us to inhibit anaphylactic broncho-spasm (experimental bronchial asthma) in sensitised guineapigs, which like in man is associated with the formation and release of spasmogenic substances (SRS-A, histamine, etc.), in lung on exposure to antigen. Saponin treatment caused gradual development of resistance against antigen and the protective effect was found to be related to reduced formation of slow reacting substance in lungs of treated animals as compared to untreated controls which manifested marked difficulty in breathing (dyspnoea).

The SRS-A isolated from perfusates of sensitised control lungs, on injection into another isolated normal guineapig lung, caused broncho-constriction (manifested as resistance to inflation of lung), which was significantly inhibited by prior injection of the plant saponin through pulmonary artery. The saponin also antagonised the spasmogenic effects of SRS-A directly on isolated intestine of guineapig. This inhibition of the saponin against SRS-A was found to be more specific as compared to the other synthetic antagonist-indomethacin which also inhibits kinins released during inflammation. The saponin of *Gardenia turgida*, being less toxic than indomethacin and more specific in its anti-allergic action, may find a unique place amongst anti-asthmatic drugs.

Pharmacological Research Unit, S. S. GUPTA.
Gandhi Medical College, A. K. RAM.
Bhopal, M.P., India, R. M. TRIPATHI.
July 28, 1972.

* Paper presented at the Fifth International Congress on Pharmacology in San Francisco, California, U.S.A., July 28, 1972.

Triticites from the Lower Permian Limestone of Ladakh

A major gap from Upper Carboniferous to Lower Permian is generally marked in different parts of Himalaya and it is considered to represent Hercynian Orogeny.

The lower units of the Sarchu Limestone exposed near Sarchu bridge (32° 48' 00" N : 77° 30' 50" E)

in the Sarchu Nallaha, Sarchu, Ladakh, have yielded well-preserved specimens of *Triticites* (*T. ventricosus*, *T. hataii*, etc.) in association with *Schwagerina princeps* and other fusulinids. These forms are known to occur in the Lower Permian rocks exposed in different parts of the world¹ and are considered important from the palaeogeographic point of view. The find of the present fauna is likely to throw new light on the stratigraphical and palaeogeographical history of this remote part of the Himalaya.

The author is grateful to the members of the Manali-Leh expedition for assistance in the field and to Prof. Franz Kahler of Klagenfurt, Austria, for confirming the identifications.

Centre of Advanced Study V. J. GUPTA.
in Geology,
Panjab University,
Chandigarh, July 12, 1972.

1. Moore, R. C. (Ed.), *Treatise on Invertebrate Palaeontology*, Geol. Soc. Amer. and Univ., Kansas Press, Protista, 2 (1), 415.

Histopathology of the Parasitic Nodule Associated with *Anthrocephalus longespiculum* Maplestone, 1931 (Syn.—*Uncinaria philippinensis*, Chitwood, 1932, *Uncinaria longespicula*, Sandground, 1933) in the Pancreas of a Hog-Badger (*Arctonyx collaris*)

During the routine necropsy examination of captive animals that are having natural death at Nandan Kanan-Zoo, a hog-badger that died on 1-8-1971 revealed a firm fibromatous growth having the size of an arecanut, adjacent to the tapering end of pancreas. Incision of the growth yielded a number of nematodes intertwined in tortuous tunnels of different sizes. The number of parasites recovered depended on the size of the tunnels. As many as 10 parasites were recovered from a large tunnel. The parasites were identified to be *Uncinaria longespicula*.

Haematoxylin and eosin stained sections of the parasitic nodule revealed sections of parasites cut in various planes embedded in structureless necrotic tissue of the tunnels. The tunnels were lined by a thin fibrous connective tissue. Major portion of the nodule comprised of dense fibrovascular granulation tissue together with diffuse infiltration of eosinophils, plasma cells and lymphocytes,

Perivascular accumulation of these cells was also not infrequent. Sections of small intestines revealed extensive catarrhal enteritis associated with marked thickening of the submucosa due to infiltration of number of eosinophils.

The present observations indicate that the adult parasites lead an erratic life in the abdominal viscera adjacent to pancreas instead of their normal predilectory site which is small intestines. The localisation of parasites in an abnormal site had apparently incited a chronic inflammatory reaction. Further, the pathogenic behaviour of the parasites was reflected by the presence of necrotic tissue around them.

Orissa Veterinary College, A. T. RAO,
Bhubaneswar-3, Orissa,

and
Veterinary Assistant Surgeon, L. N. ACHARJYO,
Nandan Kanan, Barang,
Orissa, July 18, 1972.

Ecology of Sewage Pond Stratification

The information on the influence of ecological factors on pond performance and its microstratification is meagre. A brief report on these lines has been presented.

The observations were made on the sewage stabilization pond located at the Karnatak University Campus. Temperature, pH, DO (Dissolved Oxygen), BOD (Biochemical Oxygen Demand), nutrient concentrations, algae, protozoa and bacterial count of the samples collected from 6 a.m. to 6 p.m. with an interval of 3 hours at different (0, 1, 2, 3 and 4 ft.) depths were determined according to Standard Methods¹.

Decline in temperature from surface to bottom seems to have a direct bearing on vertical distribution of algae, which were present in large numbers at the surface and decreased with increase in depth. A marked linear stratification was observed in case of euglenoids, which was not true of chlorophytes. Ciliate protozoa were found greater in numbers at the surface than in lower strata. Depletion of carbon dioxide and formation of carbonates at the upper levels of the pond showed intensive photosynthesis, concomitant increase in pH, DO and reductions in bicarbonate and ammonia (N) in the photic zone (0-2 ft.). Phosphorus did not show significant stratification. A considerable reduction in BOD upto 3 ft. and a relatively high removal of bacteria at the surface were noticed.

The observations made here are in agreement with those reported on stratification of temperature and algae², temperature and DO³, and also regarding the absence of DO⁴ and unaltered pH⁵ at the bottom

in the sewage stabilization ponds. High bacterial removals at the surface may be attributed to vigorous photosynthesis among other factors, which is directly influenced by light and temperature effecting high pH and DO values. Higher values of carbon dioxide and ammonia at the substrata clearly indicated the predominance of bacterial activity over algae.

It is inferred that stratification in temperature and light directly influences the algal distribution and photosynthesis; subsequently assimilation of nutrient, reduction in BOD and bacteria, throw light on the design criteria of stabilization ponds.

The authors acknowledge U.G.C., Karnatak University and C.S.I.R. authorities for financing the research project.

Dept. of Zoology,

Karnatak University,

Dharwar-3, July 10, 1972.

H. S. PATIL.

G. B. DODAKUNDI.

S. S. RODGI.

1. *Standard Methods for the Examination of Water and Waste Water*, 12th ed., A.P.H.A., New York, 1965.
2. Towne, W. W., Bartsch, A. F. and Davis, W. H., *Sewage and Industr. Wastes*, 1957, 29, 377.
3. Stahl, J. B. and May, D. S., *J. Water Pollut. Contr. Fed.*, 1967, 39, 72.
4. Oldham, W. C., *J. Miss. Acad. Sci.*, 1954, 6, 300.
5. Williford, H. K. and Middlebrooks, E. J., *J. Water Pollut. Contr. Fed.*, 1967, 39, 2008.

The Genus *Iphigenia* and the Problem of Speciation

While presenting the Karyotype studies in the genus *Iphigenia*, Usha Gopala Rao and A. Sheriff (*Curr. Sci.*, 41 (11): 426-427, 1972) express that "the formation of 11 clear bivalents, the absence of any multivalent formation and meiotic irregularities are indicative of the absence of polyploidy in the species". This expression is rather misleading as the authors have worked on collections of extremely limited area, possibly representing one population only. *Iphigenia indica* (L.) A. Gray which grows throughout India on different types of habitat, presents extreme variation in the size of the plant, leaf, inflorescence, flower and fruit. Even the so-called new species '*I. mysorensis*', which was studied by the authors, may be one of such variations. Various collections from the Deccan plateau and also from the coastal areas from Madras to Pondicherry present considerable variation. Cytological studies on representative populations, showing such marked variations, are essential.

Further, the indication that '*pallida*' could represent a variety of '*indica*' is rather a hasty suggestion. Moreover, *I. indica* does grow in Dharwar

TABLE I

No.	Species	Inflorescence	Flowers	Fruit	Seed (fresh)
1	<i>Iphigenia indica</i> (L.) A. Gray	1-3 flowered raceme, sometimes corym- biform	Greenish-brown to dark purple	Generally oblong- columnar	Brown with prominent adpressed band of hilum (resembling Roman helmet hood)
2	<i>I. pallida</i> Baker	.. Normally 3-8 flower- ed corymb. some- times a raceme	White to pale-pink	Generally elliptic oblong	Brown with prominent wavy, crumpled ovate mass of hilum
3	<i>I. stellata</i> Blatter	.. Generally 2-4 flower- ed raceme	Bright pink	Obovate or subglo- bose	Brown with hilum ex- tremely reduced and seen as white patch
4	<i>Iphigenia</i> sp.	.. 4-many flowered ra- ceme	Greenish-brown to dark purple or purplish-brown	Oblong	Brown with thin but distinct round band of hilum

area and it may be possible to locate *I. pallida* Baker in Bangalore area. In Poona region both the species grow with their closely overlapping flowering periods.

Studies in the taxonomy, chemistry, cytology and palynology of the genus *Iphigenia* in India are in progress at the Botanical Survey of India, Western Circle, Poona, in collaboration with the National Chemical Laboratory, Poona, while carrying out the search for new commercially useful sources of Colchicine. Recent finding of a valuable new source from *I. stellata* Blatter, yielding 1.2-1.9% of Colchicine, has been registered as the patent by the workers¹ of the two institutes and the results briefly published¹. The data so gathered, are being assessed for presenting the chaemo-taxonomic aspects of the four species of *Iphigenia* so far worked out. A brief analysis of the botanical characters of the four species is given in Table I.

Taxonomic suggestions or conclusions based on cytological observations of a few populations spread over a considerable region, made after preparing the proper analytical background on the range of species, their taxonomy, variation and distribution, would really enhance our understanding on the status and affinities of the concerned taxa.

Botanical Survey of India, ROLLA SESHAGIRI RAO,
Poona, now in Shillong,
Shillong-3, July 11, 1972.

1. Kapadia, V. H., Sukh Dev (MCL), Rolla Seshagiri Rao and Ansari, M. Y., "New sources of Colchicine in *Iphigenia*," *Phytochemistry*, 1972, **11**, 1193.

Occurrence of *Aecidium vernoniae-cinerae* Petch, in India

Vernonia cinerea Less. is a common wasteland weed in Assam. From India on this host *Plasmodium vernoniae-chinensis* Saw., *Cercospora cinerea*

Pavgi et Singh and *C. vernoniae* Ell. et Kell. have been recorded earlier¹⁻³. Present author has collected an interesting rust on this host. A perusal of existing literatures has revealed that the present rust, *Aecidium vernoniae-cinerae* Petch on *V. cinerea* is an unreported rust from India, although it has been reported earlier from Ceylon⁴ and New-Guinea⁵.

Aecidium vernoniae-cinerae Petch.—Spermagonia epiphyllous, scattered, rare, orange coloured, subepidermal, flask-shaped, with ostiolar paraphyses. Spermagonia measure 55-129 μ in breadth and 82-137 μ in height upto ostiole. Paraphyses are in a cluster, 27-63 μ long. Aecia hypophyllous, scattered, separate, subepidermal in origin, cupulate, light yellow in colour, measure 200-334 \times 178-224 μ , peridiate, margin recurved, lacerate. Aeciospores catenulate, globose to oval, yellowish coloured, verrucose, measure 14-19 μ in diameter.

Collected on living leaves of *V. cinerea*, Jalukbari (Assam), 15-5-1970 and 10-5-1972, Leg. R. N. Goswami. Specimens have been deposited in the Herbarium of Commonwealth Mycological Institute, Kew, England, as I.M.I. No. 166182.

The author thanks Dr. K. S. Thind, Punjab University and Dr. Mulder of C.M.I., for their help during this investigation and Dr. N. Das for laboratory facilities.

Dept. of Agricultural Botany,
R. N. GOSWAMI.

Gauhati University, July 5, 1972.

1. Ramakrishnan, T. S. and Sundaram, N. V., *Indian Phytopath.*, 1954, **7**, 61.
2. Pavgi, M. S. and Singh, U. P., *Myco-path. et Mycol. Applicata*, 1964, **23**, 188.
3. Roy, A. K., *J. Indian bot. Soc.*, 1967, **46**, 234.
4. Petch, T., *Ann. Roy. Bot. Garden, Peradeniya*, 1917, **6**, 218.
5. Cummins, G. B., *Mycologia*, 1941, **33**, 153.