

SHORT SCIENTIFIC NOTES

Effect of Beryllium Sulfate on the Incorporation of ^{32}P into *Limnaea* (Mollusc) Embryos

Chèvrement and Firket¹ have found that beryllium sulfate inhibits the growth of the cultures in case of connective tissue and skeletal muscles (chick embryos) and presumed it to be an inhibitor of enzymes concerned with phosphorus metabolism and probably nucleoprotein metabolism.

This report communicates the peculiar way in which $\text{H}_3^{32}\text{PO}_4$ ($350 \mu\text{c}$) incorporates into TCA-insoluble part of beryllium-treated *Limnaea* embryos. The implication is quite interesting since it is known² that ^{32}P incorporates mainly into nucleic acid part of the system. In the early embryonic stages of the species, from uncleaved stage to mid-trochophore stage there is a marked suppression of incorporation as a result of the salt action. The suppression reaches a peak in the advanced morula stage, thereafter there is a fall in the rate of suppression of incorporation resulting in the stimulation of incorporation from the moving advanced trochophore stage. Equal number of eggs were taken for comparison of incorporation. Counts of TCA precipitate portion of eggs were taken in an ordinary Geiger counter.

Unlike Actinomycin which suppresses DNA-primed RNA synthesis by forming a complex with the guanine-moiety of the double-standard DNA³ there is stimulation of ^{32}P incorporation from late trochophore stage. It may be assumed from this preliminary study that the salt cannot suppress but stimulates the nucleic acid synthesizing machinery from the late trochophore stage which is definitely known as the site of maximum RNA synthesis².

Research and Training TAPAS BOSE.
School,
Indian Statistical Institute,
Calcutta, March 20, 1972.

Effect of Synthetic Polyuridylic Acid on the Amino Acid Incorporation by Rat Liver Mitochondria

It has already been reported that externally added synthetic polynucleotides stimulate ^{14}C -amino acid incorporation into protein by isolated mitochondria from human normal and malignant cervix uteri^{1,2}. This communication is mainly concerned with the evidence that polynucleotide, viz., poly U enters into apparently intact mitochondria isolated from rat liver and stimulates specifically the incorporation of phenylalanine into mitochondrial protein.

Mitochondria from rat liver homogenate was prepared by differential centrifugation as described elsewhere². Control incubation system contained 1μ mole ATP; 5μ moles MgCl_2 ; 3μ moles phosphoenol pyruvate; $10 \mu\text{g}$ pyruvate kinase; 50μ moles Tris-HCl buffer (pH 7.4); 4mg mitochondrial protein; 250μ moles sucrose; 20μ moles KH_2PO_4 (pH 7.4) and L-phenylalanine- $1\text{-}^{14}\text{C}$ (total count/min: 4.05×10^4) or L-methionine- $1\text{-}^{14}\text{C}$ (total count/min: 4.25×10^4) or L-valine- $\text{U-}^{14}\text{C}$ (total count/min: 4.11×10^4). Total volume of the incubation mixture was 1 ml. Incubation was carried out for 120 minutes at 37°C with constant shaking (having shaker speed 114 strokes/minute). The precipitated protein was processed according to the method of Stachiewicz and Quastel³ as described by Das *et al.*⁴. The radioactivity was determined in a gas flow counter.

Mitochondria from rat liver can incorporate ^{14}C -phenylalanine into protein and are impermeable to pancreatic RNase. Poly U ($100 \mu\text{g}/\text{ml}$) stimulates phenylalanine incorporation into mitochondrial protein (5 fold over control). RNase inhibits the poly U-dependent stimulation. When mitochondria were pre-incubated with poly U ($100 \mu\text{g}/\text{ml}$) for 10 minutes at 37°C , RNase ($35 \mu\text{g}/\text{ml}$) fails to inhibit the same. This experiment may prove that poly U is getting inside the apparently intact mitochondria.

In an attempt to determine whether poly U specifically stimulates phenylalanine incorporation mitochondria were incubated with poly U,

1. Chèvrement, M. and Firket, H., *Nature*, 1951, 167, 773.
2. Brahmachary, R. L., Banerjee, K. P. and Basu, T. K., *Experimental Cell Research*, 1968, 51, 177.
3. Hamilton, L. D., Fuller, W. and Reich, R., *Nature*, 1963, 198, 538.

tested for ability to incorporate various labelled amino acids in products which were insoluble in hot TAC. The results indicate that poly U stimulate the phenylalanine incorporation but does not practically affect methionine or other amino acids incorporation.

Department of SYAMALIMA CHAKRABARTI.
Biochemistry, PRABIR BHATTACHARYYA.
Calcutta University, D. K. DUBE.
35, Ballygunge Circular Road,
Calcutta-19, March 13, 1972.

1. Roy, S. C., Dube, D. K., Bishayee, S., Lahiri, (Miss) C. and Chakrabarti, (Miss) S., *Abstracts, 10th International Cancer Congress, Houston, 1970*, p. 280.
2. Dube, D. K., Chakrabarti, Syamalima and Roy, S. C., *Cancer* (accepted for publication).
3. Stachiewicz, E. and Quastel, J. H., *Canad. J. Biochem. Physiol.*, 1959, **37**, 687.
4. Das, H. K., Chatterjee, S. K. and Roy, S. C., *J. Biol. Chem.*, 1964, **239**, 1126.

Inheritance of Dwarfing in Crosses Involving Rice Variety Baok

It has been reported in maize, barley, oats, peas, beans, tomatoes⁴ and more extensively in wheat¹⁻³ that in certain crosses involving normally tall varieties, dwarf plants are obtained in the progeny. In rice there are no such reports of occurrence of dwarf plants in crosses involving two tall varieties. The rice variety, Baok, a 'Bulu' type from Indonesia has tall growing habit and grows to a height of 130-140 cm. It possesses stiff straw, is non-lodging with two to three tillers. Bulu types are good source for stiff straw and photo-insensitive character. These varieties are being utilised for breeding varieties suitable to water-logged areas at the Central Rice Research Institute. In many of the crosses with Baok and tall local varieties the occurrence of dwarf plants in F_2 population were observed⁵. Dwarf plants besides short height can be recognised by dark green and stiff leaves.

To investigate the inheritance of dwarfing, crosses were made with Baok as a common parent with N. 22, Mtu. 15, Lalnakanda, PTB. 10 and GEB. 24 all of which are tall varieties. The F_1 plants were normal tall in all the five crosses. F_2 population were classified in the categories, viz., dwarf and normal plants and these were used in chi-square test of goodness of fit. The ratio observed normal to dwarf was in close agreement with the 13:3 theoretical

ratio in all the four crosses. This ratio was accounted for on the assumption that the parent Baok possessed two genetic factors (DD) and an inhabiting factor (II). The other five parents possess recessive factors (ddii). Dominant inhibiting factor either in homozygous (as in Baok) or in heterozygous condition (as in F_1 s) prevented the expression of dwarfism.

Since we have been dealing with Deo-gee-woo-gen dwarf gene source only for breeding high yielding short stiff straw varieties, this new source of dwarfism may offer alternative source for future rice breeding programmes.

Central Rice M. J. BALAKRISHNA RAO.
Research Institute, K. SRINIVASULU.
Cuttack-6, D. CHOUDHURY.
March 20, 1972.

1. Hermesen, J. C. Th., *Euphytica*, 1963, **12**, 126.
2. McMillan, J. R. A., *Council Sci. Ind. Res. Bull.*, 1937, 104.
3. Morrison, J. W., *Euphytica*, 1957, **6**, 213.
4. Waldron, L. R., *Genetics*, 1924, **9**, 212.
5. Anonymous, *Technical Report, Central Rice Research Institute*, 1967.

Conodonts in the Kumaon Himalaya

As a member of the geological expedition organised by the Wadia Institute of Himalayan Geology to the Kumaon Tethys in August to September 1971, the author collected specimens of limestones from the Nabi Khad near Talla Nabi Dhang which lies at a distance of about 6 km from Kalapani. These limestones from intermediate horizon between the pelletal limestone below and crinoidal limestone above it and dip at an angle of 30° due N 10° E. These specimens on maceration yielded large number of well-preserved conodonts. Among the forms identified are *Neospathodus dieneri*, *Neogondolella carinata*, *Roundya* sp. and *Parachirognathus* sp. These forms are characteristic of the Lower Triassic age^{1,2} and will help us to define the stratigraphic boundary between the Permian and Triassic Systems in this part of the Himalaya.

Centre of Advanced V. J. GUPTA.
Study in Geology,
Panjab University,
Chandigarh, March 20, 1972.

1. Srivastava, J. P. and Mandwal, N. K., *Curr. Sci.*, 1966, **35** (24), 621.
2. Sweet, W. C., *Palaeontological Contributions*, University of Kansas, 1970, **49**, 1.

A New Host Record for Parasitic Alga *Cephaleuros virescens* Kunze

The parasitic alga *Cephaleuros virescens* has been reported on the leaves and stem of *Thea sinensis*, *Rhododendron* sp.², *Camellia* sp.³, *Magnolia* sp.³ and *Piper* sp.² from India and on *Citrus* sp.³ from Florida. Present report records litchi (*Litchi chinensis* Sonner.) as a new host for this parasitic alga found to be in a virulent form on the leaves and stems in the form of red rust, causing serious damage to the litchi plantation.

This alga starts its appearance as small dark isolated patches which spread very fast and ultimately develop into a velvet reddish-brown to orange coloured cushion-like growth. Algal filaments, associated with both asexual and sexual reproductive organs, grow on both the surfaces of leaves and penetrate deep between cuticle and epidermis and sometimes extend between adjacent epidermal cells into the layers of parenchyma below epidermis. The growth of this alga initiates the development of cork tissue in few upper layers of leaves, thus causing their death. Severely infected leaves exhibit curling inward towards dorsal side.

Dept. of Botany and VIJAY K. SHARMA.
Plant Pathology, ASHWANI K. SRIVASTAVA.
Punjab Agricultural J. S. CHOHAN.
University,
Ludhiana (India), March 17, 1972.

1. Mann, H. H. and Hutchinson, C. M., *Mem. Dept. Agricult. India. Bot. Ser.*, 1907, 1, 6.
2. Sharples, A., *Malay Agric. Journ.*, 1923, 2, 120.
3. Wolf, F. A., *Journ. Elisha Mitchell Sci. Soc.*, 1930, 45, 187.

A New Host of *Dendrophthae* at Varanasi

Dendrophthae falcata (L.f.) Ettingsh (Family: Loranthaceae) is by far the most common and destructive angiospermic parasite. It causes heavy damage to mango, guava, sapota and citrus (Singh, 1962) amongst fruit trees and to forest trees like 'sal' (De, 1941, 1945) and teak (Koppikar, 1948).

Singh (1962) has compiled a list of hosts attacked by this parasite which includes 319 hosts belonging to 66 families.

Hibiscus rosa-sinensis Linn. (Family: Malvaceae) is a common ornamental plant cultivated in the gardens. *D. falcata* was found parasitizing the plant in the garden of the Chinese Temple at Sarnath in Varanasi. This host has so far been not included in the list of hosts attacked by the parasite, hence, it is a new record for the parasite.

Department of A. K. SINGH.
Plant Pathology, K. C. BASU CHAUDHARY.
Banaras Hindu Univ.,
Varanasi-5, March 21, 1972.

1. De, R. N., *Indian For.*, 1941, 67, 348;
—, *Ibid.*, 1945, 71, 349.
2. Koppikar, H. T., *Ibid.*, 1948, 74, 207.
3. Singh, B., *Bull. Nat. Bot. Gard.*, Lucknow, 1962.

ANNOUNCEMENTS

Award of Research Degrees

Bangalore University has awarded the Ph.D. degree in Chemistry to Shri B. S. Seshadri.

Utkal University has awarded the Ph.D. degree in Agronomy to Shri Sharat Chandra Panda.

M.S. University of Baroda, Baroda, has awarded the Ph.D. degree in Chemistry to Shri Jayvadan Durgashankar Mehta, Shri M. V. Chidambaram, and Shri A. P. Kuriakose; Ph.D. degree in Biochemistry to Shri D. Narayana Rao; Ph.D. degree in Geology to Shri Paresh Ramubhai Raval; Ph.D. degree in Botany to Shri Nalla Mallikarjuna Rao.

Sri Venkateswara University, Tirupati, has awarded the Ph.D. degree in Chemistry to Smt. V. J. Rani Bhaskar Rao.

Society of Biological Chemists (India), Indian Institute of Science, Bangalore-12.—

Sreenivasaya Memorial Award—1972

Sreenivasaya Memorial Award (1972) will be given for the best work done in the field of Biochemistry and Allied Sciences in India to a scientist who is below 50 years of age on 1st January, 1972. The Award consists of a cash prize of Rs. 1,000. Nominations for this Award for 1972 may be sent to Prof. H. R. CAMA, Department of Biochemistry, Indian Institute of Science, Bangalore-12, giving the nominee's age, brief resume of scientific contributions and list of publications (Six Copies), so as to reach him on or before 1st June 1972.