SCIENCE NEWS

SIXTH INTERNATIONAL CONGRESS OF PLANT TISSUE AND CELL CULTURE HELD AT UNIVERSITY OF MINNESOTA, MINNEAPOLIIS, USA

The Sixth International Congress of Plant Tissue and Cell Culture was held at University of Minnesota, USA from 3–8 August, 1986, under the auspices of the International Association of Plant Tissue Culture.

The scientific programme consisted of an all Congress symposium, concurrent symposia and poster sessions. About 1675 participants representing 65 countries attended this congress. There were 3 keynote addressess in the All Congress Symposia, 32 plenary lectures, 345 oral and about 400 poster presentations.

Keynote addresses were delivered by Dr I. Potrykus (Switzerland), Dr M. Tabata (Japan) and Dr E. C. Cocking (UK). Dr Potrykus discussing the direct gene transfer via bacterial/viral vectors, emphasized that totipotent protoplasts may offer the possibility of the host range-independent gene transfer. Dr. Tabata spoke on the pharmaceutical application of metabolities from plant cell cultures and stressed the importance of plant cell culture technologies in the production of secondary metabolites in stabler quality and higher quantities. In his address on plant cell biology in the 21st century, Dr E. C. Cocking talked of plant biology as one of the most exciting and rapidly developing sciences, which exploit new techniques for genetic manipulation in crop improvement. He emphasized the need for a better understanding of the physiology and biochemistry of the cell for the exploitation of the technique and science of plant tissue culture, as we move into the 21st century.

The concurrent symposia dealt with various disciplines of plant cell and tissue culture like micropropagation, direct and limited gene transfer, cell structure and division, secondary metabolic-production, haploidy, somatic embryogenesis, plant transformation, regulation of gene expression in cells, differentiation of cells, protoplasts and embryos, plant growth regulators, genome mapping, genetic variability, microinjection and protoplast fusion etc. Poster sessions were grouped into four categories viz development, physiology, genetics and application.

At the concurrent symposia, plenary lectures were held on primary metabolism and its regulation (Dr Dougall USA); *in vitro* propagation of forest tree species (M. Bonlay Nang's); gene transfer in cereals (H. Lorz *et al*, FRG); integration of secondary metabolism (Luckner and Diettrach, GDR); haploid from genetophytic cells—development and future prospects (Keller RA, Canada); engineering transgenic plants with useful new traits (Horsch *et al*, USA); scale-up artificial seeds (Redenbaugh *et al*, USA); secondary metabolitic regulation of synthesis (Beeker, FRG); propagation and genetic improvement of temperate fruits — role of tissue culture (G. Millus, Australia); phytochrome—induction and organic-specific expression of photosynthetic genes (N. H. Chua, USA),–expression soyabean seed protein genes in tobacco (R. B. Goldberg, USA); casual events in morphogenesis (Christianson MC, USA); somaclonal variation and genetic flux (Scowcraft, Australia); organizational events in somatic embryogenesis (P. V. Ammirato, USA); plant regulators and the control of growth and differentiation (Harganr, UK); breeding for disease resistant crop plants by cell culture (Wenzel *et al*, FRG); molecular markers in analyzing genome organisation (Bernatzky, USA); microinjection technology (B. L. Miki, Canada); photosynthesis in cell and tissue cultures (Neumann, FRG); application of tissue culture to field crop improvement (Beversdorf, Canada); recombination and transfer of chloroplasts (P. Maliga, USA); advances in cryopreservation technology of plant cells and organs (K. N. Kartha, Canada); selection programmes of intact isolation in plant cell cultures (M. Jacobs, Belgium) etc.

The significant findings presented in the symposium included, (i) cereal protoplast culture and regeneration specially in rice; (ii) gene manipulation studies using microinjection and electroporation techniques.

Gene manipulation in higher plants has been one of the dominant features of the five-day symposium. Papers were also presented on the various methods

of the DNA insertion, selection of the inserted DNA and expression of the trait concerned. The standard procedures included the use of isolated protoplasts with different chimeric gene constructions and the DNA uptake was induced by PEG treatment or electroporation. Dr. H. Lorz (West Germany) discussed the various limitations in plant regeneration from protoplasts that restrict wider application of DNA transformation attempts; alternatively, viral, bacterial or fungal vector systems, pollen-mediated transformation and direct injection were visualized.

There were about 5 reports on isolation of rice protoplasts, culture and plant regeneration from different groups, mostly from Japan. Cell suspensions of anther calli and embryo calli were used to obtain totipotent protoplasts that gave high frequency plant regeneration as much as 50%. This is a major achievement to all those interested in gene manipulation experiments that cereal crops are also easy to manipulate for gene insertions. Techniques of gene transfer such as microinjection, electroporation, direct DNA transformation can now be applied to get the desired variability in the existing genetic systems.

The next congress will be held at Amsterdam, The Netherlands.

Department of Gentics
Osmania University
Hyderbad 500 007

G. M. Reddy

INTERTIDAL DEPOSIT FROM VISAKHAPATNAM COAST

The Visakhapatnam Coast is long known for its black sand concentrates containing ilmenite, monazite, garnet, magnetite and zircon. While working along this coast M. J. Rao and J. S. R. Krishna Rao of Department of Geology, Andhra University reported the intertidal deposit from this part of the coast. A brief description is given below.

The intertidal deposit occurs at 50 to 100 m away from the present day sea. The deposit is found underlying the red sediments of the area in four places along the coast, due to erosion of the overlying red sediments. Lithologically the intertidal deposit consists of a consolidated and unconsolidated beach material. The size of the constituents ranges from sand to gravel. The various constitutents are cemented by carbonate and iron oxide. The carbonate part of the cementing material in the beach rock is aragonite, as revealed by differential thermal analysis and cobalt nitrate etching test. Iron oxide has been identified as the goethite by ore microscopic examination. The deposit can be classified into the following three units.

	Composition
1. Beach Rock: (Size < 2 mm dia)	Quartz rich to opaque mineral rich, cemented with carbonate.
2. Conglomeratic beach rock: (Size 2–3 cm)	Mainly quartzitic and minor Khondalitic pebbles cemented with carbonate.
3. Flat pebbles: (Size 1 to 30 cm)	Unconsolidated flat quartzitic and Khondalitic pebbles.

Further work is in progress on the age and provenance of the deposit to establish its position in the Pleistocene sea level changes of this coast.

J. S. R. Krishna Rao

Department of Geology
Andhra University
Waltair 530 003.
