

## MEETING REPORT

**A call to end water fluoridation\***

More than 120 specialists and delegates from various countries like Brazil, China, England, Estonia, Germany, India, Japan, Mexico, Myanmar, New Zealand, Nigeria, Poland, South Africa, Turkey, Thailand and USA participated in the conference. The four-day conference had about 50 presentations and 40 posters concerned with health effects, epidemiology, geochemistry, toxicology, metabolism, prevention and treatment of fluorosis.

Guifan Sun (School of Public Health, China Medical University, Shenyang) in his inaugural address stressed on active research of fluoride and improvement of the health condition of people all over the world because fluoride has a statistically significant association with a wide range of adverse effects. These include an increased risk of bone fractures, decreased thyroid function, lowered IQ, arthritic-like condition, dental fluorosis and possibly, osteosarcoma. A. K. Sushela (Fluorosis Research & Rural Development Foundation, India) in her presentation highlighted fluoride ingestion and health hazards with a focus on

anaemia in pregnancy and low birth weight babies and emphasized on the guidelines for rectification. Sun-Dian-Jun (Institute for Endemic Fluorosis Control and Research, China) and Li Hai Rong (Institute of Geographic Science and Natural Resource Research, China) discussed epidemic scope, region characteristics and population drinking brick-tea type fluorosis in China. The study covers 29038 administrative villages, 2601 resident communities, 1504 elementary schools and 2873 temples having a total population of nearly 3105 and 123 monks. Similarly Mehvi and Sinha (Tehran University of Medical Sciences, Tehran) discussed fluoride contents in Iranian black tea, tea liquor and drinking water sources. Tomoko Takeda (University of Tokyo, Japan) and Gangal (Military Engineering College, India) presented fluoride intake sources and fluorosis among the population in Chiang Mai Basin, Thailand and incidence of fluoride in water resources of four states of India respectively. Mohamedally (UK) presented pathophysiological role of fluoride ions from fluoridation. Effects of fluoride and related factors on the nervous system, potential for developmental fluoride neurotoxicity altered cholinergic receptors, cellular membrane lipids and alterations in calcium homeostasis on

exposure to fluorosis were also discussed. Regulation of fluoride on the expression of osteoprotegerin, osteocalcin, increased bone sialo protein expression RANKL mRNA apoptosis dependent protein expressions were the topics debated among several speakers.

Paul Connette (USA) while presenting on 9 August 2007, the Fluoride Action Network (FAN) statement signed by over 600 professionals, stated that it is time for advanced nations and fluoridating countries to recognize that fluoridation is outdated and has serious risks that far outweigh any minor benefits, violates sound medical ethics and denies freedom of choice. Thus, fluoridation must be ended now and the declaration called on all medical and dental professionals, members of public water departments, local officials, public health organizations, environmental groups as well as media to promote awareness of fluoridated water ineffectiveness and serious health risks posed by fluoridated water.

\*A report of the XXVII conference of International Society for Fluoride Research (ISFR) held at Beijing, China, in association with China Endemic Diseases Society and Ministry of Health, China during 9–12 October 2007.

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## MEETING REPORT

**Large branchiopods symposium\***

The common representative examples of branchiopods are the fairy shrimp and *Artemia*. As a major and diverse class of Crustacea, the branchiopods form significant groups of animals inhabiting un-

stable ephemeral inland waters and salt pans. To tide over the unfavourable dry season and drought, these invertebrates produce sexually or parthenogenetically numerous drought-resistance dormant eggs called 'cysts'. When wet, these cysts hatch. How does the molecular architecture make the cyst drought-resistant and what signals the dormant embryo to restore and complete development? The larvae of *Artemia* are called 'naupulii', which constitute 'the live capsule of nutrition' to the sensitive early stages of

cultivated food and ornamental fishes. To feed the 1000 million hatchlings of shrimp cultivated for export, India imports 100 tonnes of *Artemia* cyst at the cost of Rs 560 million. Hence research on large branchiopod has academic and economic importance.

Realizing the importance of these creatures, D. H. Dumont (Ghent University, Belgium) started a series of symposia. In recognition of its significant contribution to researches on the branchiopods, the Department of Zoology and Aquacul-

\*A report on the Sixth International Large Branchiopods Symposium organized by the Department of Zoology and Aquaculture, Acharya Nagarjuna University, Vijayawada during 16–20 September 2007 and held at Hotel Punnami, Vijayawada. The symposium was supported by UGC, DST, DBT and INSA.

ture, Acharya Nagarjuna University, Vijayawada, India was invited to organize the sixth international symposium to provide a forum for the scientific community to present their findings on branchiopods, confirmation of the taxonomic identification by young scientists and collection of specimens from unexplored habitats. As many as 50 participants, including a dozen from Australia, Belgium, Brazil, Mexico, Thailand and USA participated in the symposium.

The symposium was presided over by Brian V. Timms (Australia) and inaugurated by V. Balamohandas, Vice-Chancellor, Acharya Nagarjuna University. The latter highlighted the achievements of the Department of Zoology and Aquaculture. Dumont nostalgically narrated the events of all the earlier five international symposia. In his felicitation address, T. J. Pandian (Madurai Kamaraj University, Madurai) highlighted that when dehydrated, the proteins in the *Artemia* cyst withstood with the thus far known minimal residual water of 0.7 µg/g cyst and when hydrated to (1 million times) 0.7 g/g cyst, restored the normal process of embryonic development. P. Venugopal (Zoological Survey of India) spoke on the Indian biodiversity of the branchiopods.

Following this a series of 36 presentations were made; they may be broadly grouped into eight papers on taxonomy, 13 on biology, 12 on aquaculture and three on genetics. Some of these are mentioned below.

Being a defenceless filter feeding creature, *Artemia* inhabits super saline waters in which few organisms are known to occur; hence the *Artemia* occupies 'biological vacuum'. In India and elsewhere, one species or two species belonging to the genus *Artemia* are known to co-habit. Interestingly, Timms has recorded for the first time 14 species of *Parartemia* to live in super saline waters of south Western Australia. The fairy shrimps occur exclusively in freshwater, but he has recorded the Australian fairy shrimp, *Branchinella simplex* in super saline waters. Hence, as far as large branchiopods are concerned, Australia appears to be a richer country for biodiversity in its numerous saline waters. Alejandro M. Maeda-Martinez and Gopal Murugan (both from the North West Biological Research Centre, Lapaz, Mexico) stressed the importance of genetic markers, in addition to the use of morphology in the assessment of biodiversity of fauna and flora.

N. Munuswamy (University of Madras, Chennai) identified the proteins resistant to extreme dehydration in the cyst of *Artemia* as p26 and artemin. The Chinese have sequenced p26. Using immunotechniques, Munuswamy has detected the presence of artemin in the cyst of fairy shrimp and has nearly completed the sequence of artemin.

La-orsri Sanoamuang (Thailand) captured the attention of the public, media and farmers. She has developed a technology for mass culturing the fairy shrimp,

*Streptocephalus sirindhornae*; the technique has been patented. Briefly, by wetting and re-wetting the cyst with rain water, she was able to hatch them, whenever required. The fairy shrimp has three times more carotene and hence, when fed to ornamental fishes, the fairy shrimps not only provide adequate nutrients but also produce bright colours. In his presentation, John showed that the Indian fairy shrimp, *Streptocephalus dichotomus* and clam shrimp, *Leptestheriella nobilis* are a rich source of proteins and rare essential amino acids, and they can be best alternatives as live feed organisms. Durga Prasad described the discovery of new species of branchiopods from India.

The participants were also taken on a day-long field trip to Lake Kolleru; the largest lake in South East Asia, spanning an area of 350 sq. km. The scientists interacted with the Kolleru farmers, who had pioneered aquaculture in India. The scientists answered several questions raised by the farmers.

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