Infosys Prize 2015

The Infosys Science Foundation (ISF), Bengaluru, announced the winners of the Infosys Prize 2015 on 16 November. The award is given under six categories: Engineering and Computer Sciences, Humanities, Life Sciences, Mathematical Sciences, Physical Sciences, and Social Sciences. This year's winners are: (i) Umesh Waghmare (Theoretical Sciences Unit, Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru) for his innovative use of computer simulations to understand microscopic mechanisms responsible for specific properties of certain materials, which he advocates as a cost-effective process. (ii) Amit Sharma (International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi) for his pioneering contributions towards deciphering the proteomics and genomics of the deadly malarial parasite. (iii) Mahan Maharaj and Swami Vidyanathananda (Ramakrishna Mission Vivekananda University, Belur Math, Kolkata, West Bengal) for their contributions to geometric group theory, low-dimensional topology and complex geometry. (iv) G. Ravindra Kumar (Tata Institute of Fundamental Research (TIFR), Mumbai) for his pio-

neering experimental contributions to the physics of high-intensity laser–matter interactions, research that has significance to testing stellar and astrophysical scenarios. (v) Jonardon Ganeri (Department of Philosophy, New York University and Department of Philosophy, King's College London, UK) for shedding light on shared ground, as well as the dichotomy between Indian and Greek traditions of philosophical reasoning. (vi) Srinath Raghavan (Centre for Policy Research, New Delhi) for his research on contemporary and historical aspects of India's foreign and security policies. The prize for each category includes a 22 karat gold medallion, a citation certificate and prize money worth Rs 65 lakhs. The awards will be presented to winners on 13 February 2016, in New Delhi by the President of India, Pranab Mukherjee.

Since its inception in 2008, the Infosys award represents the pinnacle of achievement for scientists and researchers. The Infosys Prize is based on the premise that exceptional scientific intellect deserves recognition. In addition, the Prize aims to raise acceptance for science as a vocation among young Indians. The Infosys Prize is awarded under the aegis of the ISF, a

non-profit organization is funded by a corpus, contributed by the former Board of Directors and senior management at Infosys. The first prize was awarded to Mahendra Agarwal in the field of mathematics, for his contributions to the study of algorithms for solving mathematical and related scientific problems. The winners of the Infosys Prize for each year are evaluated by a panel of esteemed scientists from around the world. This year the jury consisted of Pradeep K. Khosla (University of California, San Diego) for Engineering and Computer Science; Amartya Sen (Harvard University) for Humanities; Inder Verma (Salk Institute of Biological Sciences) for Life Sciences; Srinivasa S. R. Varadhan (New York University) for Mathematical Sciences; Shrinivas Kulkarni (California Institute of Technology) for Physical Sciences and Kaushik Basu (The World Bank) for Social Sciences. With the adjudication by such an eminent panel of experts, the Infosys Prize winners may be considered on par with the finest researchers in the world.

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Database on nutritional composition of food fishes from India

Food is an important component of public health as the quality and quantity of food components greatly influence the health status of the consumers[1]. Therefore, for developing and implementing effective dietary interventions to improve nutrition at the community and population level, it is important to know the nutritional situation of the target group[2], which requires the evaluation of quality and quantity of the food items consumed through food composition analysis.

The food composition analysis data are the basis of food-based dietary guidelines for healthy nutrition[2]. The importance of such information has been understood worldwide and bulk amount of food composition data have been compiled in the form of on-line databases. Some of the important interna-

tional databases include International Network of Food Data Systems (INFOODS; http://www.fao.org/infoods/infoods/en/), European Food Information Resource (EuroFIR; http://www.eurofir.org/), Nutrient Database for Standard Reference-US Department of Agriculture (http://ndb.nal.usda.gov/), Nutrition Coordinating Center University of Minnesota, USA (http://www.ncc.umn.edu/), etc. While INFOODS is a worldwide network of food composition experts aiming to improve the quality, availability, reliability and use of food composition data, EuroFIR AISBL draws together the best available food information globally from 26 compiler organizations in Europe, Australia, USA and Canada (FoodEXplorer) as well as validated information about bioactive

compounds. Such databases provide information on nutrient composition of food components to dieticians and clinicians for their inclusion in clinical nutrition. These databases are also helpful in creating awareness among the consumers and increase the economic importance of food components and provide standardized calculation procedures that are required for international studies on nutrition and disease to calculate nutrient intake across countries.

Fish is an important component of human diet and is a rich source of quality animal proteins that are readily digestible and contain the dietary essential amino acids in quantities that correspond to human requirements[3,4]. Fish is one of the cheap sources of quality animal proteins and availability and affordability is better

Figure 1. Homepage of database on 'Nutritional composition of food fishes from India' (http://www.cifri.res.in/outreach/).

for fish in comparison to other animal protein sources. Thus, fish can go a long way in eradicating the protein deficiency diseases prevalent among 870 million people in the world suffering from chronic protein malnutrition[5]. Fish is considered as a health food owing to its oil which is rich in polyunsaturated fatty acids (PUFAs), especially the omega-3 PUFAs eicosapentaenoic acid (EPA) and docoshexaenoic acid (DHA)[6,7]. It is well established that these omega-3 PUFA rich fish oils have a number of therapeutic properties and they are reported to play important roles in preventing childhood asthma and attention deficit hyperactivity disorder (ADHD) in paediatric population; cardiovascular diseases (CVD), hyperlipidaemia, hypertension, atherosclerosis in adults and dementia and age-related macular degeneration (AMD) in the geriatric population. Besides being a rich source of quality protein and oil, fish especially the small indigenous ones, are micronutrient-dense

and can play a pivotal role in eradication of micronutrient deficiency-related diseases prevailing mostly in the developing and underdeveloped countries[8]. In the present-day world, more and more people are becoming health conscious and want to know about the composition of the food they consume. This is particularly important for commodities like fish, as there are large varieties of fish available from a number of ecological habitats which vary in their composition. Understanding the biochemical composition of food is important to determine its nutritive value, which in turn is needed for harnessing fish to its fullest extent to provide nutritional security. Generation of such information bears more importance in countries like India, which harbour a rich fish biodiversity and fish is an important component of the daily diet.

Complete nutritional information on different food fishes would enhance their utility in clinical nutrition and help in issuing dietary guidelines, and thus could

contribute significantly to nutritional food security. However, dedicated nutrient databases comprising nutrient composition of different fish species are scarce and such information is available for a limited number of fish species. Keeping this in the backdrop, nutrient profiles of food fishes from India, from different habitats across the country, have been extensively studied in consortium-mode by the research institutes under the Fisheries Science Division, Indian Council of Agricultural Research as an 'outreach activity'. The large nutritional data generated under this outreach programme have led to the designing and development of a database, i.e. 'Nutritional composition of food fishes from India' (http://www.cifri.res.in/outreach/; Figure 1). The database runs LAMP (Linux, Apache, MySQL and PHP) technology at the front end, MySQL at the back end and the PHP is used as a server script[9].

The main feature of the database is information on food fishes in terms of proximate composition, amino acid, fatty acid, mineral and fat-soluble vitamin. The fishes included in the study belong to different habitats like freshwater, brackish water, marine and coldwater. The database has an in-built knowledgebase which provides information on the richness of different fish species in different food components which can be helpful for their inclusion in dietary counselling by physicians[9]. Besides the nutritional data, information on standard international protocols followed to generate the information and other technical aspects is also available. It archives the publications including research bulletins, monographs, folders and research articles which serve as the original sources of information.

This database is the first of its kind on fish-food data in the country and is envisaged to serve as a repository of all such nutritional information on different food-fish species. This would also serve as a knowledgebase for different clientele groups, including physicians, nutritionists, planners and consumers to increase the utility of fish as a health food and in clinical nutrition as well. The nutritional information generated could also be helpful in prioritization of fish species for aquaculture depending upon their associated nutritional values. By now nutritional information on ~50 important food fishes has been generated;

however, 100 species have been targeted to be studied by 2017 in this on-going work.

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MEETING REPORT

Inflammation*

Inflammation is an immune response of the body to harmful external or internal stimuli. This process involves immune cells, blood vessels and several molecular mediators. Inflammation is supposed to sustain till the body resolves the stimulus and achieves homeostasis. It is a natural biological process which is required to heal injuries and infection. The problem arises only when the body is not able to resolve the initial inciting factor leading to persistent or chronic inflammation. If the initial response is short-lived it is known as acute response with classical signs, such as pain, heat, redness, swelling and transient loss of function. If the inflammation does not subside, it becomes chronic and leads to tissue destruction, thickening or scarring of connective tissues and cell/tissue death. Dysregulation of immune system due to chronic inflammation will eventually cause several disease-states and conditions, such as allergies, periodontitis, atherosclerosis, myopathies, autoimmune diseases, diabetes and even cancer. Due to 'bystander' damage of the tissue during inflammation, immune mechanisms are closely regulated by the body during physiology and got altered in pathophysiology. Therefore, it is important to know the factors and pathways that regulate the mechanisms of inflammation so as to evolve strategies to reduce the consequences of inflammation and their health atrocities.

As chronic inflammation is the common underlying thread that runs through many clinical conditions, research in this area requires a multi-dimensional approach encompassing various fields of medical sciences, basic sciences and clinical informatics. Considering this, a two-day scientific meet on inflammation was organized in Bengaluru recently. It brought together researchers from clinical and basic sciences working in the field of inflammation from various parts of the country. The purpose of the meet was to initiate a crosstalk on the role of inflammation in non-communicable diseases. While the meeting offered a platform for a multi-disciplinary approach to strengthening inflammation research in India, the deliberations in a nutshell are presented here.

The meet started with a talk by S. Chandrashekara (ChanRe Rheumatology and Immunology Centre and Research (CRICR), Bengaluru) on 'Dichotomy of quantifying and managing the inflammation in autoimmune disease'. He deliberated on the need 'to quantify, qualify and assess the impact' of clinical and

*A report on the 'Scientific Meet on Inflammation' organized by ChanRe Rheumatology and Immunology Centre and Research, Bengaluru and The Immunology & Arthritis Research and Education Trust, held at the ChanRe Diagnostic Laboratory (CDL), Bengaluru on 22 and 23 August 2015.