International Symposium on Ciliate Biology 2018 (ISCB 2018) with International Research Coordination Network – Biodiversity of Ciliates (IRCN-BC), an affiliate society of International Society of Protistologists (ISOP)

Organizing team: Dr. Ravi Toteja and Dr. Seema Makhija

Date: April 04-06, 2018

The 2nd International Symposium on Ciliate Biology (ISCB 2018) convened by Dr Komal Kamra, co-convened by Dr Renu Gupta, Dr Seema Makhija and Dr Ravi Toteja, was organized at the India Habitat Centre in New Delhi , India, from April 04 - 06, 2018. Three colleges of the University of Delhi: Acharya Narendra Dev, Maitreyi and SGTB Khalsa led by their Principals Dr Savithri Singh, Dr Haritma Chopra and Dr Jaswinder Singh respectively played a pivotal role in providing logistic support for the smooth run of the symposium. The symposium was a result of synergy with International Research Coordination Network for Biodiversity of Ciliates (IRCN-BC), an affiliate society of International Society of Protistologists (ISOP). Financial support came from international agencies such as ISOP and IUBS, and Indian agencies CSIR, DBT, DRDO, DST-SERB, ICMR, IMTECH, INSA, and ZSI. The symposium was inaugurated by Dr Mahesh Sharma, Minister of State, Union Ministry of Tourism and Ministry of Environment, Forest and Climate Change. The aim of holding of the symposium was to provide a platform to scientists in ciliate research to present their findings before the International Protistology community, and to expose undergraduate students to the subject on a bigger canvas. It was attended by over 300 Indian delegates and 9 foreign delegates.

The symposium comprised 22 oral and 57 poster presentations delivered by participants covering various aspects of ciliate research: biodiversity, ecology, evolution, role of ciliates in the food web of soil and water ecosystems, indicators of pollution and in bioremediation fields.

Three presentations mainly focused on ciliates as bioindicators of environmental quality. Dr Komal Kamra threw light on ciliates as bio-indicators of water quality collected from different locations of the River Yamuna, Delhi, India. Dr Alan Warren presented investigations on the relationships between ciliate communities and physico-chemical analysis of water samples collected from Jiazhou Bay, on the Yellow Sea Coast of NE China. Dr Antonietta La Terza gave a lecture on using ciliates as indicators of ecosystem health where the ciliated protists can be used in prognostic and diagnostic assays to detect overall ecosystem impairment.

Three presentations focused on use of ciliated protists for cytotoxicity testing. Prof Rup Lal gave an overview on the effect of pesticides on growth and DNA and protein synthesis by using *Styolonychia notophora* as the model system. This pioneer work on ciliates has helped in using bacterial system for evaluating various environmental stress conditions and helped in entering into the field of genomics and metagenomics. Prof Nageswara Rao Amanchi gave a talk on cytotoxic effects of Cypermethrin on both morphological and physiological changes in two freshwater ciliates *Paramecium caudatum* and *Blepharisma intermedium* and concluded that these two freshwater ciliates can be used as models for ecotoxicological studies. Similar deliberation by Dr Ravi Toteja delved on the effects of heavy metal toxicity on freshwater ciliates. Increase in the activities of antioxidant enzymes and in the transcriptional expression of stress genes (like hsp70 and metallothionein) were discussed concluding that these enzymes and stress genes can be used to evaluate heavy metal toxicity.

Seven oral presentations focused on ciliate biodiversity. Prof Rosaura Mayén-Estrada gave an overview on family Vorticellidae where detailed information on more than 250 free living and ectosymbiotic species of crustaceans was discussed asking for revision of the status of this family. Dr Anastasia Shatilovich delivered a talk on ciliate diversity in the permafrost sediments and in the profiles of Tundra soils. Prof Alexey Potekhin gave an overview on the hidden diversity of genus *Paramecium* where he reported revision of two subgenera of *Paramecium* and description of two new *Paramecium* morphospecies. Dr Shashi's presentation was on four hypotrichous (3 urostylids and one stichotrichid) ciliated protists isolated from Maharashtra, India. Dr Santosh Kumar gave morphological and molecular description of two different species one each of *Sterkiella Fragmospina* collected from soils of Silent Valley National Park, India. Ms Harpreet Kaur gave the description of a novel freshwater oxytrichid ciliate *Gastrostyla* sp. and compared it with other reported species belonging to genus *Gastrostyla* using molecular phylogeny. Dr Jasbir Singh talked about ciliate biodiversity across Sikkim mainly focusing on hypotrichous ciliates belonging to family Oxytrichidae which were predominantly present in that region.

Ciliate ecology was the focus of three presentations. Dr Sai Elangovan S reported the interaction between the environment and diversity of tintinnids (loricate ciliates) inhabiting mangrove proximal zone waters of south Andaman. A similar talk was delivered by Dr V Ratna Bharathi who reported the correlation between physicochemical parameters and diversity of protozooplanktons at Konam reservoir, Andhra Pradesh, India. Ms Anjusha presented the diversity of aloricate and loricate ciliates in estuaries, coastal waters an open ocean waters at Kochi, India.

Two presentations focused on parasitic ciliates. Prof Probir Kumar Bandyopadhyay gave an overview of controlling the growth of fish parasitic trichodinid ciliates by using fresh garlic-bulb. Use of garlic reduced the trichodinids burden of goldfish significantly. Dr Amlan Kumar Mitra talked about the diversity and distribution of ectoparasitic ciliated protists belonging to family Trichodinidae which are responsible for trichodiniasis disease in fishes.

Prof Cristina Miceli delivered a talk on frameshift mutation in the hsp70 gene of Antarctic ciliate, *Euplotes focardii* due to which this heat-shock chaperone did not get induced under thermal stress but was induced to normal oxidative stress, thus concluding that ciliates can act as better model systems to study environmental adaptation. Prof Elena Sabaneyeva delved on various endosymbionts detected in the ciliate *Paramecium* sp. Dr Seema Makhija gave an

overview of progression of ciliate biology research at University of Delhi where different kinds of research have been and are currently being done.

Poster presentations were grouped into three themes: ciliate experimental, ciliate review and biological sciences. Fifty seven delegates (including undergraduates, post-graduates, research scholars and faculty members) actively participated. Awards were given to the three best posters in each category. Under the theme "ciliate experimental", Ms Jeeva Susan Abraham, Mr Maksim Melekhin and Ms Sheeba and Ms Anjali Yadav received the best poster awards. Ms Abraham delivered a presentation on inferring phylogenetic positioning of three spirotrich ciliates by using modern molecular techniques. Mr Melekhin explained about species divergence in genus Paramecium by studying micronucleus morphology, 18S rDNA and COI gene. Ms Sheeba and Ms Yadav gave a presentation on phylogenetic study of Blepharisma sp. using molecular markers like 18S rDNA and ITS gene. Under the theme "ciliate review", Ms Arveen Kaur, Ms Tanvi Gupta and Mr Harsh Thakur & Mr Priyank Rawat received the best presentation awards. Ms Kaur gave her presentation on symbiotic relationship of Chlorella sp. with the ciliate Paramecium bursaria. Ms Gupta delved on telomeric G-Quadruplex DNA structure in various ciliate species. Mr Thakur & Mr Rawat made a presentation on various molecular marker genes to study the phylogeny of any species. Under the theme "biological sciences" Dr Jasmine Purushothaman and Ms Akhila Anil, Mr Amit Babu& Mr Sarthak Khurana received the best poster presentation awards. Dr Purushothaman presented a paper on diversity and distribution of testate amoeba in different ecosystems in urbanized areas of Kolkata, West Bengal, India. Ms Anil, Mr Babu and Mr Khurana gave presentation on Moina which can be used as a new model system for studying neurodegenerative disorders.

On the last day, a workshop was conducted on "Tools and Techniques used in ciliate studies" for undergraduate and postgraduate students. The workshop was co-organized by Zoological Survey of India (ZSI) and ISCB 2018; the workshop facilitators were Dr Renu Gupta, Dr Jasmine Purushothaman, Dr Nageswara Rao Amanchi, Dr Santosh Kumar, Dr Jasbir Singh, Ms S Sripoorna and Ms Jeeva Susan Abraham. Sixty nine students actively participated in the workshop wherein various bioinformatics tools used for analysing the ciliate biodiversity were taught to the students. The aim of the workshop was to provide networking opportunities for students wishing to take up doctoral or postdoctoral research on ciliates. During the valedictory, Prof Chandrima Shaha, Vice President (Foreign Affairs), Indian Academy of Sciences, was the Chief Guest. Dr Jaswinder Singh, Principal, SGTB Khalsa College, complimented the organizers for the smooth conduct of the symposium, thanked the foreign protistologists and commended the holistic involvement of the students in the venture. Our special thanks to the advisors of ISCB 2018 - Dr Alan Warren, Prof Cristina Miceli, Prof GR Sapra and Prof Rup Lal. Financial assistance by Indian and foreign agencies is greatly



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The organising core committee acknowledges the financial support by international agencies - ISOP and IUBS - and by several national governmental agencies including INSA, DBT, DST-SERB, CSIR, ICMR, DRDD, ZSI.

The symposium would not have taken a great shape were it not for our advisors, Dr Alan, Warren (NHM, UK), Prof Cristina Miceli (Camerino, Italy), Prof GR Sapra, Prof Rup Lal, Dr Ravi Chaturvedi and members of the national organizing committee.

The Indian Ciliate Biologists held several meetings during this period and the formation of a registered pan India society of cliate biologists is now well under way. This will pave the way for more national activities in the field and set the ground for collaborations, both among the Indian ciliate biologists and with overseas laboratories.

Another major highlight of the symposium was that ZSI will be publishing the symposium proceedings as a book with ISBN listing and all presenters agreed to contribute their presentations in the form of short research articles; the cover page of the same was launched at the valedictory.

The core committee members. Dr. Komal Kamra (Convener), Dr. Renu Gupta (Organising Secretary), Dr Seema Makhija and Dr Ravi Toteja (joint Secretaries) express gratitude to the Principals of the organising colleges and other staff members for extending full support for the successful conduct of the International Symposium on Cillate Biology 2018.

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Apríl 04-06, 2018

India Habitat Centre, New Delhi, INDIA

Themes: Biodiversity, Ecology, Evolution, Genetics and Epigenetics, Genomics and Meta genomics, proteomics and DNA barcoding, Ciliates and Industry, Ciliates as model organisms in UG teaching and in research, other individual specializations in microbiology

Some of our confirmed international speakers along with Indian Ciliate Biology Fraternity



Come join the symposium, as a presenter (oral/ poster), or as a participant, and interact with the best speakers, share and collaborate

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Last Date for Registration & Abstract Submission January 15, 2018

Visit Symposium Website <u>www.iscb2018.com</u> for Details

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