



Prepared on behalf of International HCH and Pesticides Association (IHPA)

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**Aim**

The aim of this newsletter is to disseminate information in a cost-effective way on the developments taking place in bioremediation technology moving the frontiers of technology for commercial exploitation both in developed and developing countries. Special emphasis will be given to bio-removal of pollutants in soil, water matrices and will cover mainly Persistent Organic Pollutants (POPs) as designated by the Stockholm Convention on POPs and also other persistent toxic pollutants not covered under the POPs conventions. It will also highlight cleaner and environment friendly technologies, which show good promise in this area. The newsletter will not go into technical details of selected scientific publications but only highlight salient features for the benefit of the readers. One can subscribe and read IHPA Newsletter (3-4 times/yr free of charge) at: <http://www.ihpa.info/subscription.php>

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**Note from the Editors**

I am extremely pleased to welcome our new Co-Editor Dr Susi Khetan from the Green Chemistry Institute, Carnegie Mellon University to join our team of Bioremediation Newsletter. Apart from being a good friend of mine, he has achieved a good recognition from academic and industrial circles in India and the USA. His small bio Sketch is given below. In addition, we are including the work of The Collins group of Carnegie Melon University in which Dr. Khetan is one of the team members. This work on degradation of toxic and persistent organic compounds has been well covered by the news media and scientific journals.

**Bio Sketch of co-editor Dr. Sushil K. Khetan.**

Dr. Sushil Khetan is a research scientist in the Institute of Green Oxidation Chemistry, Carnegie Mellon University, Pittsburgh, Pennsylvania, USA. For over 25 years, he has acquired extensive experience in synthetic chemical pest control technologies, biopesticides and decontamination of chemical toxicants and microbial pathogens. In all these years, his research interests have been centred on the development of environmentally friendly technologies. Dr. Khetan has been employed at the Hindustan Insecticides Ltd. India and as head of the pesticides development Centre oversaw execution of the UNDP/UNIDO assisted pesticide development programme in India. He has provided consultancy services to organizations such as UNIDO, WHO and the World Bank in the Asia-Pacific Region. He has authored/co-authored numerous research papers, journal articles, books etc. Dr. Khetan is a member of the ACS and Society of Industrial Microbiology. One of his books Microbial Pest Control (2000), published by Marcel Dekker, New York, has been adopted in graduate programs of several U.S. universities. He received a Ph.D. degree (1968) in Chemistry from IIT, Kanpur. Currently he is living with his family in the USA.

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**Breakdown of pesticides**

Fe-TAML<sup>2+</sup> Activators Developed at Carnegie Mellon BreakDown Toxic Pesticides The so called 'Collins Group of Carnegie Mellon Univ. in which our new co-editor Dr. Khetan is one of the senior members of the team, came up with the announcement of a novel oxidant system to decompose toxic and persistent pesticides. This paper was presented at the 226th Annual Meeting of the Amer. Chemical Society on Sep10, 2003. The announcement had a wide coverage in New York Times, USA-Today and also in many scientific journals.

The USA Today in its Sept. 9-10, 2003 issue says "an innovative, environment friendly catalyst has the potential to clean-up water polluted at textile, pulp and paper mills, removes sulphur from petroleum, more effectively kills anthrax, breaks down toxic agricultural pesticides, This chemical wonder is called Fe-TAML for iron-Tetra Amido Microcyclic Ligand.

According to the group it had a great success with their oxidation catalyst Fe-TAML and hydrogen peroxide in achieving total degradation of trichlorophenol and pentachlorophenol and several OP insecticides such as fenitrothion, chlorpyrifos, quinalphos and diazinon with substantial mineralization and >50-fold reduction in aquatic toxicity tested for Daphnia. The Collins Group has already published extensively (see April issue of Science) on the use of very small concentrations of Fe-TAML activators and H<sub>2</sub>O<sub>2</sub> to rapidly break down PCPs, TCPs, in water at room temperature. According to the Collins Group this invention might lead to an affordable technology to clean up water in developing countries. Some of these compounds are federally regulated, given their inherent persistence, their inherent toxicity and their propensity to decay under natural oxidizing conditions into long-lived dioxins. Dioxins accumulate in tissues of animals and are linked with a variety of ailments, including cancer. They plan to study several chlorinated systems including PCBs, dioxins in due course.

According to John Warner Director of the Univ. of Massachusetts Boston Centre for Green Chemistry says "while it may not be cost-effective this year, in five years it might be the only game in town". According to Collins "our single biggest goal is to develop a system of catalysts that can eliminate a wide range of pathogens in water to have cleaner drinking water world wide". The catalyst is going to be tested in pulp-paper factory in New Zealand. We wish them all success in their application of this wonder catalyst and help developing countries to have clean water at a very low cost.

For more information on Fe-TAML please visit: [www.chem.cmu.edu/groups/collins](http://www.chem.cmu.edu/groups/collins)

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**Phyto Remediation**

In a recent Biotechnology Forum-European Consultative Meeting organized by UNIDO during December 9-12, 2003 (see also item Events) Hungarian workers from the Plant Protection Institute, Hungarian Academy of Science presented a paper entitled Phytoremediation - Bottlenecks. This group also presented a paper in the IHPA Forum in Poznan during 2001. Now completing their work, at a site near the famous Balaton lake contaminated with pesticides, heavy metals and chlorinated hydrocarbons they used poplar (*Populus* spp.) for phytoremediation which the authors say inexpensive, simple, environment friendly and clean. Despite all this they highlighted the drawbacks and limitations of this technology. The paper clearly spells out the bottlenecks based on the results and gave the limitations. I think this is a good paper and those using phytoremediation should look carefully the lessons learned and try to overcome these bottlenecks.

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**SIACM Meeting**

Since the last newsletter, the major event has been the Strategic Approach to International Chemicals Management (SIACM) Meeting in Bangkok during November 2003. Strategic Approach to International Chemicals Management (SAICM) is an initiative decided in the seventh special session of the Governing Council of UNEP to develop a strategic approach to international chemicals management. This initiative was endorsed by the World Summit for Sustainable Development (WSSD) in J'burg in September 2002. The World Health Assembly in May 2003 and ILO expressed support for SIACM. SAICM was discussed at the Fourth Session of the International Forum on Chemical Safety (IFCS) held in Bangkok from 1-7 November 2003. Following this the First session of the Preparatory Committee for the Development of a Strategic Approach to Chemicals Management was held in Bangkok from 9-13 November 2003. The session was attended by more than 150 countries reflecting the importance given to proper management of chemicals. All the major UN agencies and around 15 NGOs were present.

The Session was opened by the Minister of Natural Resources and Environment, Thailand and opening statements were made by Mr. Kim Hak -Su, Executive Secretary of ESCAP, Mr. Klaus Topfer, Executive Director of UNEP, Mr. Zoltan Csizer of UNIDO the current Chairman of The international organization for management of Chemicals (IOMC) and Mr. Suwit Wipulpolprasert, President of the IFCS.

There was a broad support for a three tiered approach submitted by Switzerland to:

- Global Programme of Action (GPA)
- An overarching chemicals policy strategy (OCPs)
- A High Level Declaration adopting the GPA and OCPs.

There was a sound of caution on duplicating work done by international instruments such as the Montreal Protocol and the Stockholm Convention. The importance of chemical monitoring and development and use of health indicators as part of risk management strategies was raised. The global monitoring system with local level participation was further emphasized. The 'zero waste' was reiterated as the goal with promotion of cleaner production techniques. The Chairman of IOMC Dr. Z. Csizer,

noted that the various discussions at national/regional and international levels should be promoted. Again several participants emphasized the importance of addressing the issue of toxic pesticides especially the impact on human health and environment during application. Egypt and others said that the goal should be to protect human health and the environment from the harmful effects of chemicals and proposed SAICM to provide a frame work for global action and coordination. It further added that capacity building is pivotal issue for developing countries. Green Peace along with WWF and ICFTU called for inclusion of most of the problematic chemicals such as endocrine disrupters, those that are persistent bioaccumulative and toxic and carcinogenic, mutagenic etc. They also wanted transparency, broad participation of all relevant stakeholders. WWF urged safer alternatives for problematic chemicals.

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#### Follow-up of Kiev Meeting

The Kiev IHPA Forum followed up its resolution and the parliamentarians from Ukraine met the EU MP (European Members of Parliament.)

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#### European industries concern on REACH (Registration, Evaluation and Authorization of Chemicals)

Europe's Most Controversial law on Chemicals called -REACH, according to Financial Times (U.K.), the EU's plans to impose tough new rules are widely seen as one of the most controversial projects. Spearheaded by Margot Wallstrom, the EU Environment Commissioner, the European Chemical industry is on a head on collision with the EU Commission. The German Industry Federation warned that the new rules demanding toxicology data on thousands of chemicals already in the market and for the new ones will cost around Euros 32 billion and will result in loss of 1.7 million jobs in Germany alone. The EU says it will cost only Euros 5 billion. According to Observer news paper , the chemical industry response was ' deny the problem, deny the solution , ignore benefits, suppress dissenting voices , argue for more research, and if all fails , propose lowest common denominator go voluntary'. According to the UK and European chemicals industry associations, the new REACH proposals designed to offer greater protection to human health and environment are in effect going to de-industrialize Europe and pose a real threat to industry , jobs and quality of life in the EU.

Meanwhile animal welfare campaigners have been angered by the proposals which they fear will result in a rise in animal testing. The EU Commissioner says 'the alternative is worse , which is uncontrolled testing on human beings'

Whatever is the opinion 'REACH' will ultimately reach the floors of many international meetings raising forceful arguments and counter arguments before coming to a compromise position. [Source: Financial Times and Chem. and Ind, (U.K)]

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#### Sale of PCB contaminated sites

US (EPA) will allow sale of PCB contaminated sites. It says that the old law on ban on sale imposed 25 years ago is a barrier for development. According to USEPA changes would allow buyers to take on and clean up sites owned by people lacking money or ability to do it themselves. (Source Chemistry and Industry, Sept.2003)

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#### AFIDE refers to IHPA links

In the 10th session of the United Nations Industrial Development organization (UNIDO) held in Vienna during 1-5 December, a statement was made by The Association of Former United Nations Industry and Development Experts (AFIDE) in its statement read by its Vice president Mr. Kamal Ahmed , specially mentioned its linkages to IHPA. It might be recalled that the President of AFIDE, Ms. Tchecknavorian participated in the 7th IHPA Forum in Kiev.

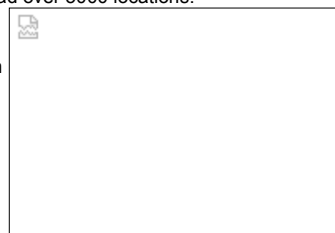


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#### Follow-up to 7th Kiev Forum of the IHPA

One of the major follow-up of the 7th IHPA Forum held in Kiev, Ukraine was the meeting between a delegation from Ukraine discussing the problems of obsolete pesticides in the country with the EU Parliament, Brussels. Mr. Zaetz of Ukraine went during 24-26 November , to EU Parliament in Brussels in his efforts to find political support for the Ukrainian case of 20000 tons of obsolete pesticides spread over 5000 locations.

See picture: Left to right: Peter Harrington(London), John Vijgen (IHPA), Wim Kersten (Assistant MEP de Roo), Ivan Zaetz (Vice Deputy of the Committee on Environmental Policy, Nature Resources, Utilization and Elimination of the Consequences of the Chernobyl Catastrophe of the Ukrainian Parliament and former Minister of Ecology and Natural Resources), Frank Schwalba-Hoth (Brussels), Jef Rivalain (Assistant MEP) Isler Béguin, Yuliya Sahitava (Grodno)( MEP means Member of Parliament).(Copyright EU)



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#### IHPA features in Pesticide Outlook Journal

A feature article written by John Vijgen and B. Sugavanam appears in the October issue of a well known journal Pesticide Outlook published by the Royal Society of Chemistry UK. The article is entitled 'Role of IHPA and the HCH Pesticides Forum -Background, History and Latest achievements'

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#### Future Events

1. Federal Remediation Technologies Roundtable of Texas is organizing a conference on 'Accelerating Site Closeout, improving Performance, and Reducing Costs Through Optimization' at Dallas from June 15-17, 2004. The conference is intended for remediation programme managers, public health and regulatory officials, remediation system operators and optimization service developers. Registration is free. Contact [ics-events@saic.com](mailto:ics-events@saic.com)
2. UNIDO Global Biotechnology Forum, Concepcion, Chile March 2-5 ,2004. This is one of the major events on biotechnology for this Millennium and will cover , i. Global Biotechnology trends and prospects for developing countries. Under this biopharmaceuticals, agro-food industry, bioremediation, other industrial applications of biotechnology., biotechnology and biodiversity will be covered. ii. Challenges for developing countries and possible solutions: Transversal Approach will cover Technical assistance and capacity building, Biosafety and Intellectual property rights, biotechnology trade and economic implications, public perception. iii. What follow-up After the Global Biotechnology Forum? Here one expects , identification of Specific projects for Technology Transfer, Establishment of an International Biotechnology Pool , Establishment of an inter-Agency network on Biotechnology. As a prelude to this major event an European Consultative meeting was held in Vienna from 9-12 December , 2003 and , Asia - Pacific industrial Development Forum 16-17 December , 2003 at Chengdu, China. Contact person [g.tzotzos@unido.org](mailto:g.tzotzos@unido.org)
3. A major Bio-technology event will take place in Alexandria Egypt. It is called Bio- Alexandria 2004 and will be held from April 3-6 in Alexandria. The theme of the event is -The New Life Sciences: Ethics, Patents and the Poor.' . The programme will focus on Health, Food, Agriculture, and Industry and Environment. The First day of the meeting has been allotted as 'Noble Day' when six Nobel Laureates will take the floor to discuss issues. We congratulate University of Alexandria for organizing a memorable event in Egypt. For contact: [mhanan.abdelrazek@bibalex.org](mailto:mhanan.abdelrazek@bibalex.org)
4. One day session on REACH at SCI Headquarters, London.  
REACH: Your Chance to Quiz the Other Side (whichever side you're on) SCI REACH Forum 10am-11.30am Monday 19th January 2004 SCI International Headquarters 14/15 Belgrave Square London SW1X 8PS. Come and ask your question at the SCI REACH Forum. Panelists will represent Friends of the Earth, World Wildlife Fund UK, the Chemical Industries Association, and the British Chemical Distributors and Traders Association. Each member of the panel will put their point of view and then answer questions from the audience.  
Why debate REACH? Reach has been hailed as the most important regulation in 20 years. Now in its final draft, it is closer than ever before to becoming part of EU law. Currently, only 10% of chemicals undergo official screening tests to prove their safety. Under REACH, all chemicals - around 30,000 - will be tested. The chemical industry thinks it is too tough. Environmental groups think it is not tough enough. It is rare to get both sides together to debate the topic, but they will be doing so with equal representation on neutral ground at SCI's International HQ on 19th January 2004 at 10am. This is your chance to put questions to panelists representing Friends of the Earth, World Wildlife Fund UK, the Chemical Industries Association, and the British Chemical Distributors and Traders Association.  
"REACH could bring world-wide benefits for human health and the environment. But it looks as if the European Commission has given too many concessions to industry." - WWF "The revised [REACH] proposals are still far too complex and expensive to operate and still contain unworkable requirements. The benefits through health cost savings ... make The Auditorium SCI International Headquarters 14/15 Belgrave Square London SW1X 8PS. This event is free, but places are limited and must be reserved as soon as possible. To book and to send advance questions to the panel, email [rosamund.snow@soci.org](mailto:rosamund.snow@soci.org) or call 020 7598 1571/3.
5. The major event is the Festive Season and Year ending.

The POP's and Obsolete Pesticides Newsletter team wishes its readers:

**A very Happy Festive Season and a Very Prosperous New Year!!!**

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Editor: B. Sugavanam, Email: [mbsugavanam@yahoo.co.uk](mailto:mbsugavanam@yahoo.co.uk)

Co-Editor : Lindita Tafaj, Email: [mltafaj@albmail.com](mailto:mltafaj@albmail.com)

Co-Editor: Sushil Khetan, Email: [skhetan@andrew.cmu.edu](mailto:skhetan@andrew.cmu.edu)

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