BIOQUAL

NEWSLETTER

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WEAO Conference a Success

In April, BIOQUAL's Annual meeting took place in Windsor, in conjunction with the well-attended Annual Conference of the Water Environment Association of Ontario. BIOQUAL Steering Committee members John Neate and Gord Speirs from the Wastewater Technology Centre co-chaired a session on emerging bio-process developments.

BIOQUAL members also presented papers on research results about biotechnologies to remove nutrients and toxic chemicals from industrial and municipal wastewaters. Privatization of municipal services, including wastewater treatment, emerged as a hot topic for discussion.

Partnership discussions are now underway for the 1995 BIOQUAL Annual Meeting. Look for more information in the next issue of BIOQUAL.

University of Guelph United on Environmental Issues

Nearly 70 faculty, students and staff from the University of Guelph have joined forces to establish an environmental communications network.

"This widespread interest could well make Guelph the pre-eminent university in Canada dealing with environmental issues," said Ole Nielsen, former dean of the Ontario Veterinary College.

Nielsen, who was one of the organizers, also noted that "the turnout reflected the transdisciplinary nature of environmental research at the university and would contribute positively to keeping the network broadly based--not just confined to any particular field."

The network has already adopted a seven-point framework to forge greater links between parties interested in environmental issues that include:

- enhancing environmental awareness on campus,
- developing inter-disciplinary projects,
- responding to new opportunities (including linking with other universities and government and industry),
- applying for collaborative research grants,
- improving the lines of communication within the university,
- finding out what other environmental groups are doing outside of the university, and

News Items Needed!

The BIOQUAL Secretariat compiles the information in this Newsletter. We will be pleased to print any items relevant to the objectives of the BIOQUAL network that you think may be of interest to members. Please send any submissions or enquiries to the Secretariat at the following address:

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Environment Canada Environnement Canada

Canada

- integrating teaching, research and extension activities.

"The network is a response to researchers' needs to be informed about environmental expertise, accomplishments and activity on their own campus," said Professor Stewart Hilts, director of the Centre for Land and Water Stewardship. "We would also like to inform people off-campus about Guelph's ability to address environmental problems and issues. The network has received funding support from administration, which makes it distinct from earlier Guelph-based environmental initiatives that lacked the resources to achieve their aims," added Professor Hilts.

Future plans include creating a directory of those involved in the network (such as Professor Michael Moss, associate dean of the Faculty of Environmental Sciences) and a publication geared towards an external audience.

For more information, please call:

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Immobilization of Bacterial Cells for Use in Soil

Microorganisms are useful in many environmental applications, such as improving crop growth and protecting plants in agriculture, leaching and accumulating metals, or emulsifying hydrocarbons. In recent years, research on releasing and tracking non-engineered and genetically engineered microorganisms in soil, and their survival and dispersal, has increased. Their genetic interaction in soil has also been studied.

These studies have found that microbial cells can be immobilized in solid carriers such as alginate, Kappa-carrageenan, agar, agarose, polyacrylamide, xanthan-carob, vermiculite and peat for release into soil. Immobilization of microbial cells provides a stable environment in which cells survive and biological reactions can be maintained for extended periods. Encapsulated microbial cells are easy to produce, store and handle during subsequent manipulations. These are important considerations in industrial and environmental applications. Encapsulation or immobilization of microbial cells may enhance survival of both genetically engineered and non-engineered microbial strains used in agriculture, forestry and pollutant biodegradation. The slow release of microbial cells from carriers like alginate and kappa-carrageenan allows for efficient root colonization by the microbial cells. Inoculant consistency and effectiveness may be enhanced by the defined nature of some carriers. Encapsulated cells may also be easier to release into soils as solid inoculants can be used with conventional seed-sowing machinery. This may also reduce dispersal to undesirable locations.

Research is in progress on the use of Pseudomonas and Flavobacterium cells encapsulated in kappa-carrageenan for degrading chlorinated compounds in soil such as pentachlorophenol (PCP). Encapsulated cells are easy to apply to soil and encapsulation may extend the life of the cells. This may be especially important in highly contaminated soils containing mixtures of toxic pollutants. (Publications are available.)

For more information, please call:

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New Research on the Structure of Microbial Aggregates

The presence, formation, transformation and separation of microbial aggregates (activated sludge flocs and biological films) are crucial for the effectiveness of biological wastewater treatment systems. Yet so little is known on the subject that it's difficult to model properly important operations and processes like settling, flocculation, and mass transfer in waste water systems. To study particles aggregates, the Department of Civil Engineering at the University of Toronto has developed an improved sedimentation testing technique, a direct image analysis, and a solidification/slicing technique. The fractal concept was successfully used to process experimental data. This research has resulted in several published reports that:

- provide a qualitative and quantitative confirmation of advective transport in activated sludge flocs,
- disprove the Mitani et al. model for flocs' density,

- seriously question Smith and Coakley's findings on the size of water gaps and channels inside the flocs,
- formulate a more advanced approach to size distribution of the flocs,
- analyze the factors affecting flocs' dispersion, and
- evaluate the dynamic patterns of biofilm porosity changes and allow for quantitative characterization of biofilm surface.

For more information, please call:

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The 1994 Quebec Biotechnology Companies Directory Now Available

Industry Canada has published the 1994 edition of the Quebec Biotechnology Companies Directory. The Directory lists, by sector, 126 biotechnology companies, venture capital firms and suppliers located in Quebec.

The Directory includes the name and address of each company, and a brief description of its business strategy and research and development programs.

You can obtain a free Directory (in both official languages) by writing to Serge Hébert, Coordinator - Biotechnology, Industry Canada, Suite 3800, 800 Place Victoria, P.O. Box 247, Montreal, Quebec, H4Z 1E8.

ISO 9000 Certification at E.B. Eddy Forest Products Ltd.

E.B. Eddy Forest Products Ltd. has announced an aggressive program of process improvement that includes International Standards Organization (ISO) 9000 certification. In fact, the Port Huron, Michigan paper mill has already received ISO 9002 certification.

ISO 9000 standard certification demonstrates the capability of a manufacturer to control processes that determine the acceptability of an end product. The certification assures customers that materials and products meet international quality and performance standards.

E. B. Eddy is now working towards ISO 9002 certification at its Espanola, Ontario and Ottawa/Hull mills.

For more information please call:

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The Ottawa Life Sciences Technology Park Opens

New and growing biotechnology and life sciences companies eager to establish links between business, governments, educational institutions and financiers can now take advantage of the services offered by the Ottawa Life Sciences Technology Park.

The park includes a 47 000 square foot multi-tenant facility designed to accommodate 20 to 30 small and medium-sized companies.

Biology, chemistry, biochemistry, pharmacology, immunology, environmental studies, agriculture, aquaculture, microelectronics, telecommunications and software related businesses are welcome in the park.

The facility, located on a 23-acre site next to the Ottawa Health Sciences Centre, offers shared administrative services, conference rooms, photocopy services, teleconferencing, industry-standard clean rooms, shipping and receiving, solvent storage and waste management facilities, plus individual offices and wet labs. The building provides flexible space that allows for interaction while safeguarding confidentiality.

The Ottawa Life Sciences Technology Park is now accepting tenants.

For more information please call:

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Conferences

September 21-23, 1994
Calgary, Alberta

4th Annual Symposium on Groundwater and Soil Remediation

Topics: Research and development in areas such as site characterization, assessment, toxicity, remediation and compliance monitoring.

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November 10-11, 1994
New Delhi, India

17th International Conference on Chemistry, Bio-Sciences, and Environmental Pollution

Topics: Analytical/inorganic and organic chemistry, chemical engineering, biochemistry/ biosciences and biotechnology, chromatography/spectroscopy, environmental studies (environmental pollution, aquatic and atmospheric environment, hydrology, water and air quality, etc.) metal analysis, polymers, pyrolysis and thermal analysis, and soil, agriculture and forestry.

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November 5-9, 1995
Vancouver, B.C.

Society of Environmental Toxicology and Chemistry (SETAC) '95 World Congress

Theme: Global Environmental Protection: Science, Politics and Common Sense.

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