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Special Issue on the 6th International Phytotechnologies Conference, St. Louis, Missouri, 2009: Conference Review

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SPECIAL ISSUE ON THE 6TH INTERNATIONAL PHYTOTECHNOLOGIES CONFERENCE, ST. LOUIS, MISSOURI, 2009: CONFERENCE REVIEW

Joel G. Burken and Jason C. White
Co-Vice Presidents, International Phytotechnology Society

This special issue of the *International Journal of Phytoremediation* is comprised of topics presented at the 6th International Phytotechnologies Conference in December 2009. The conference was held in St. Louis Missouri, as the conference venue returned to the USA after the first international location in Nanjing, China in 2008 and before the 2010 meeting in Parma, Italy.

The conference was hosted by the International Phytotechnology Society, with additional support from National Science Foundation, the National Institutes of Health, BP, Roux Associates Inc, Peabody Energy, and the Missouri University of Science and Technology. The meeting consisted of all time highs of 93 platform presentations, as well as 98 posters and 6 exhibitors. Attendees represented 26 countries, numbering in excess of 200 scientists, engineers, regulators, site owners, and students. The conference also served as the venue for the first Phyto Scholars Program. The NSF sponsored program helped to support over 80 students to attend the conference and take part in Scholars Program's activities that included setting a plan of attending talks to meet specific self-generated learning objectives. Scholars also attended a lunch where they mingled and socialized with some of the more senior researchers in the phytoremediation field. Details of the program and conference activities are available at Phyto.mst.edu.

The meeting sessions opened on December 2nd with a Plenary Session that featured a welcome by the conference organizers. Dr. Peter Raven delivered the conference keynote talk, which was a wonderful kick off. Dr. Raven is one of the nation's more decorated scientists; he has served as President of the American Association for the Advancement of Science and Secretary of the National Academy of Science, was named a "Hero for the Planet" by TIME magazine, and is recipient of the United States National Medal of Science in 2000. As a preeminent botanist and environmental scientist, Dr. Raven discussed the importance of plants in earth's balance, and changes that are occurring to our planet from our anthropogenic impacts. The plenary session also honored Dr. Alan Baker as the Milton Gordon Award recipient, and he gave a talk covering his many decades of research that helped to develop the field of phytoremediation. Dr. Dennis Hazel talked about the various methods of converting biomass to renewable energy. Dr. Bill Suk, Director, Center for Risk and Integrated Sciences, and Director, Superfund Research Program, National Institute of Environmental Health Sciences (NIEHS), presented a talk outlining the impacts of phytoremediation on public health. The final plenary talk was the closing topic of the conference. Dr. Richard Sayer of the Danforth Plant Research Center in St. Louis

highlighted novel methods being investigated for algae biofuels. Methods included genetic modification for increasing the efficiency of photosynthesis and also included methods of 'milking' the biofuels from algae.

The conference consisted of 3 concurrent tracks over 2 days. The talks and speakers demonstrated the amazing advances in the field, as well as the remarkable diversity of researchers conducting the work. New initiatives were discussed, including urban gardening in inner cities, rain gardens and green infrastructure developments, utilizing plants for biofuels and of course new approaches for removing contaminants from our soil and groundwater. Some of these new areas exemplified the attractive advantages of phytotechnologies, including the public's acceptance and embrace of plant-based treatment systems and the duality of phytotechnologies in treatment/remediation and concurrent ecological enhancement. Topics of carbon sequestration/management and the concurrent remediation and generation of biofuels were also prevalent in the technical sessions, showing the multiple benefits of phytotechnologies. Breakthroughs in fundamental science were also covered at the meeting, including research in engineering specific enzymatic abilities into transgenic plants and in better understanding contaminant-plant and microbe-plant interactions. Many of these novel research efforts are highlighted in this special issue of the *International Journal of Phytoremediation*.

The conference also served as the venue for 2 workshops and meetings of the International Phytotechnology Society http://www.phytosociety.org and for the editorial board of the *International Journal of Phytoremediation*. Prior to the conference technical sessions, workshops were conducted by Dr. David Tsao and the ITRC staff on practical, how-to topics from science to regulatory approval and by Dr. Bill Retzlef on greenroof design including a visit to the research facilities at Southern Illinois University-Edwardsville. The Phyto Society meeting, held at the Morgan Street Brewery, discussed new initiatives of the society, and the venue for the next meeting was selected as Parma Italy, which was held in September 2010.

The editorial board of the *International Journal of Phytoremediation* also gathered at the conference to discuss the annual progress of the journal. For 2010, *IJP* received 237 submissions; this was 35% increase over 2009. The impact factor was 1.321; up from 1.217. Submissions were received from 49 countries, with 22% from the United States and 78% from international authors. The journal distribution is as follows: 108 society subscriptions; 31 institutional; 1,435 on-line sales agreements; 22,069 Libraries via EBSCO; 1,800 additional libraries via philanthropic initiatives (World Bank-designated developing countries). In 2010, *IJP* published 832 pages in 8 issues (59 papers). In 2011, *IJP* will publish 1070 pages in 10 issues, as well as this special issue containing papers from the 6th International Phytotechnologies Conference. This special issue is paid for with funds from the International Phytotechnology Society (IPS), Connecticut Agricultural Experiment Station (CAES), and the National Science Foundation (NSF).

At the closing plenary session, Dr. Barbara Zeeb announced the student platform/poster winners. Nele Weyens (Hasselt University, Belgium) was awarded the best student platform presentation, and the student poster presentation awards were presented to Marylou Machingura (Southern Illinois University), Heather Slater (University of Alaska Fairbanks) and C. Becerra-Castro (Instituto de Investigaciones Agrobiológicas de Galicia, Spain).

Perhaps like no other field of study, phytotechnologies require an immense range of expertise, scaling from molecular mechanisms to multi-hectare plume control systems. By bringing these leading scientists, engineers, and regulators together, the Phytotechnologies

Conference series seeks not only to assess the current state of the science and application of phytotechnologies around the globe, but also to plot out the direction and goals for plant-based remediation systems in the future. In the humble opinion of these attendees, the Phytotechnologies Conference series has again not only achieved, but also surpassed these goals.

In closing, we'd like to thank the Conference Planning Committee and Sue Turner and her staff from the Office of Global Learning at Missouri S&T for their efforts that helped make the 6th International Phytotechnologies Conference a great success.

Conference Planning Committee, 6th International Phytotechnologies Conference

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Jason C. White, Technical Sessions Chair, Vice President, International Phytotechnology Society
Barbra Zeeb, Conference Student Sessions & Poster Sessions Chair, International Phytotechnology Society
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