EuroSciCon

EuroSciCon Joint Event on

Biotechnology, Stem Cell and Molecular Diagnostics

April 16-17, 2018
Amsterdam, Netherlands

J.W.Dobrowolski et al., Biochem Mol biol J 2018 Volume: 4
DOI: 10.21767/2471-8084-C2-011

NOVEL TRENDS IN SYSTEM APPROACH TO BIOTECHNOLOGY-BASED SUSTAINABLE DEVELOPMENT AND BIOECONOMY

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Long-term transdisciplinary research and problem-solving training support integration of modern environmental and medical biotechnology, human ecology, ecotoxicology, ecoengineering, remote sensing, architecture etc. for optimization sustainable management of the natural resources and promotion environmental health and bioeconomy-driven green labour market all over the world. Recommendation of system approach to Common Action of Experts and Knowledge-based Sustainable Society (including e-distance education and Life Long Learning) for Biotechnology driven better Quality of Life. Holistic approach should integrate wide scale use of modern biotechnology for as early as possible detection of synergistic effects of physical, chemical and biological risk factors (in the natural and indoor environment and human food chain) with more efficient primary prevention. For prevention of incurable congenital malformations of disease of civilization Minamata as well as increasing rate of cancer/leukemia incidence are recommended biotechnologies introduced by the first of authors like evaluation of the synergistic effects of anthropogenic factors on embryological development, mutagenesis and carcinogenesis, including cell monitoring, free-radical pathology- oriented delay luminescence and other biophysical tools in linkage with monitoring of personal exposition and sensitivity, supplemented by nutritional and environmental health focused on better prevention of premature death due to environmental contamination. Introduced by JWD laser biotechnology is recommended for more efficient biodegradation of cancerogenic oil pollutants PAH, bioremediation toxic metals, reclamation of contaminated and semidesert areas, enhancement of biomass production by energy plantations, greeining cities, and for better adaptation of biotreatment and photodisinfection of wastewater and food production to climate change. For optimization selection areas predisposed for laser biotechnology introduction useful is application new methods of remote sensing e.g. for detection cultivated or forest areas of high phytotoxic effects followed by decrease of CO_2 assimilation and biomass production by multispectral analyse e.g. fraction of Absorbed Photosynthetically

Biography

Ph.D. of Jagiellonian University at age of 27 years, Sc.D. of W-M University in 1982, Professor in 2003 , Distinguish Professor in 2003. In 1968, initiated common action of university youth and Life Long Learning, followed by AGH Open University, National, International Schools, Workshops for Sustainable Development , Environmental Health Biodiversity and Bio-economy in the model regions from Poland, Brazil , China during 50 years. Chairman of 15 International Conferences on Sustainable Development. Distinguish professor Jan W. DOBROWOLSKI, Ph.D., D.Sc., Dr.h.c. chairman of the International Team of Sustainable Development and Eco innovation (as well as 15 International Conferences in this field from 1989 to 2014),fellow of the World Academy of Arts and Science, Royal Academy of Science-Institute of Spain, Consortium of the World University, Academeie Internationale des Sciences Ararat, Board of Directors of the International University of Bio-Environment and International Ansted University, professor of environmental engineering, biotechnology and human ecology of International University of Fundamental Studies, Section of Environmental Biotechnology EBS, Interuniversity Consortium of Biotechnology in Krakow, European Institute of Ecology and Cancer, founding member of the International Union of Elementologists and Balkan Academy of Sciences and Sustainable Development, etc.

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