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## ENZYMOMOLOGY AND MOLECULAR BIOLOGY

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**Biorefinery safety: The role of INAIL in Italy**Pietrangeli B, Lauri R and Stefanelli M  
INAIL, Italy

The Italian Workers Compensation Authority (INAIL) research in the biotech field is focused on occupational safety in biotech plants and the promotion of industrial applications in the perspective of environmental remediation and sustainable development according to the framework of the European legislation. Existing lessons on safety public concern of biotech plants suggest that the development of effective, responsive and responsible safety standard can improve the trust of the public opinion and affected industries in biotech and in the new generation plants (biorefinery). The first step should be replacing the current retrospective risk-based paradigm for governing biotechnology with a proactive safety paradigm applied early in the design process. Although the environmental and health risks posed by bioprocesses for the valorization of biomass are usually expected to be lower than the traditional chemical and petrochemical processes, there is still a lack of information about safety aspects of biorefinery plants, especially for novel bioprocesses under development. In 2014 INAIL carried out a research project on biorefinery safety through the investigation of some industrial plants in Italy. Furthermore, INAIL has a partner in the Circular Economy European project RES URBIS mostly focusing to convert urban bio-waste into valuable biobased products like polyhydroxyalkanoate (PHA) based bioplastics and bio-based solvents and fibers in an integrated single biowaste biorefinery and by using one main technology chain. As part of the RES URBIS project, the role of INAIL is to study the occupational risk for the workers who are involved in the production process of PHA from bio-waste.

**Biography**

Pietrangeli B was a Biologist at the Sapienza University of Rome in the year 1983 and Specialist in Hygiene and Public Health (1986). From 1988 to 1995, she was a Researcher at Enitecnologie (Italy) for the development of biotech processes for the disposal and valorization of industrial wastes. Since 1995, she is a Researcher at the Italian Institute for Occupational Health and Safety (currently INAIL) and is responsible for research projects in remediation of contaminated sites and biorefineries in relation to the safe application of biotech processes. Since 2008, she is an Adjunct Professor at the Sapienza University of Rome. She has published about 100 papers in national and international journals.

b.pietrangeli@inail.it

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