

SOLID URBAN WASTE MANAGEMENT

**XXI IUPAC CHEMRAWN
CONFERENCE**

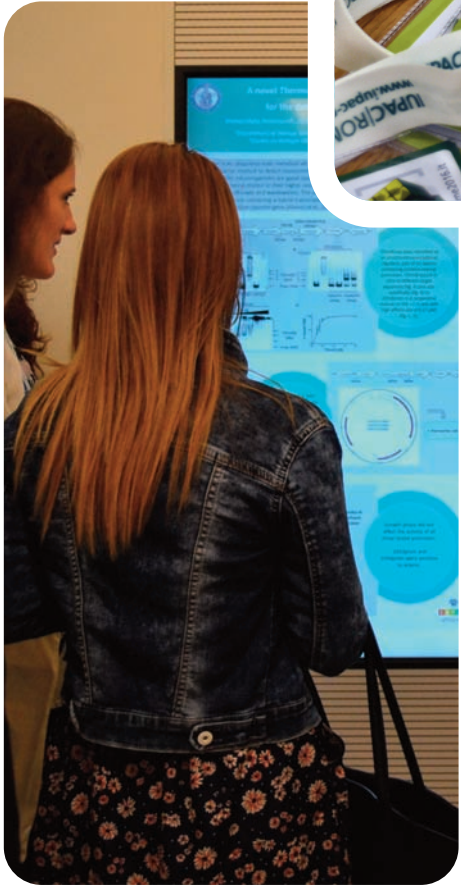
Rome April **6|7|8** 2016

CNR Headquarters Piazzale Aldo Moro, 7



**BOOK OF
ABSTRACTS**

www.iupac-rome2016.it





Huge amounts of wastes are produced yearly all around the world. The amount of Solid Urban Waste, one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization.

Poorly collected or improperly disposed waste and lack of enforced regulations, mainly in low and middle-income countries, can have a detrimental impact on the environment due to contamination of groundwater and surface water by leachate, as well as air pollution from burning of waste.

The aim of XXI IUPAC CHEMRAWN Conference, Rome April 6-7-8 2016, has been to present a comprehensive perspective on the current challenges of Solid Urban Waste Management and new directions for their exploitation, especially through a 'from waste to resource' approach.

The Conference has brought experts from the urbanized world together, as well as experts from Developing Countries, in representation of 33 Countries, giving an opportunity not only to scientists from many disciplines, but also to organizations, policy makers and experts, to meet and discuss future trends and action required.

During the event local, national and international realities have shared methods and best practices jointly addressing the most pressing issues and comparing the different solutions.

The XXI IUPAC CHEMRAWN Conference in figures:

APRIL 6|7|8 | 2016

4 Thematic oral sessions:

ENERGY FROM URBAN WASTE
 MATERIALS RECYCLING, TRANSFORMATION AND RECOVERY
 FROM ORGANIC WASTE TO RESOURCE
 EDUCATION TO SUSTAINABLE WASTE MANAGEMENT

4 thematic poster sessions

**1 Open Discussion on Policy Issues
 and recommendations**

**1 Industrial session on Current technologies
 and future perspectives**

94 Abstracts submitted representing 20 Countries

78 Speeches

55 Poster contributions

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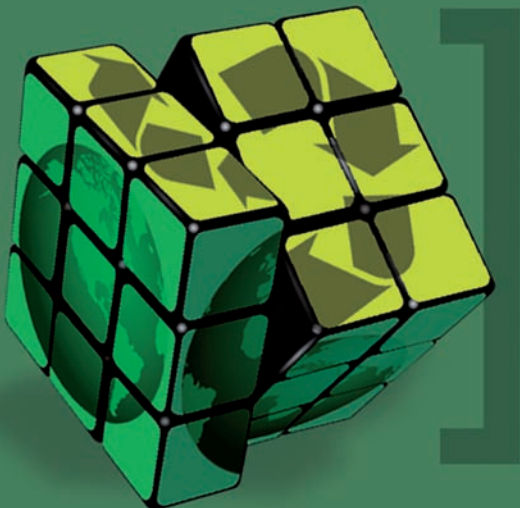
SESSIONS

ENERGY FROM URBAN WASTE

MATERIAL RECYCLING,
TRANSFORMATION AND RECOVERY

FROM ORGANIC WASTE
TO RESOURCE

EDUCATION FOR SUSTAINABLE
WASTE MANAGEMENT



USAGE OF BY-PRODUCTS FROM SUGAR INDUSTRY AS A CHEAP SUBSTRATE FOR DEXTRANSUCRASE PRODUCTION

Different treatments of sugar beet pulp for enhanced dextranase production on molasses

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Dextranase (DS) is extracellular enzyme that catalyses the synthesis of dextran using sucrose as a substrate, mainly produced by microorganisms belonging to the genera *Lactobacillus*, *Leuconostoc* and *Streptococcus*. The aim of this study was usage of by-products from sugar refineries, molasses and sugar beet pulp (SBP) as a cheap substrate for DS production. Fermentation process was performed by a natural isolate from water kefir grain *Leuconostoc mesenteroides* T3. Molasses (ethanol Factory Alpis, Kovin, Serbia) with addition of SBP (Fibrex 620, Nordic Sugar, Denmark) was used as fermentation media. Molasses was diluted in distilled water to a concentration of 2.5%. SBP was grounded in a mortar and pestle to a particle size of 500–800 µm. Four different treatments were performed on the SBP before it was added into molasses: NaOH extraction, enzymatic pretreatment (Viskozym), biological pretreatment (*Paenibacillus chitinolyticus* CKS1) and combination of microwave and ultrasound treatment. The enzyme activity was determined by measuring the concentration of released reducing sugars by DNS method at 540 nm, using fructose as a standard. Combination of microwave and ultrasound treatment as well as biological pretreatment resulted in low DS activity. The best results of 1.45 U/ml were obtained with alkali and enzymatic pretreatments. Considering that enzymatic treatment is environmental friendly it provides suitable method for SBP pretreatment for enhanced DS production on molasses.