PHYSICAL CHEMISTRY 2022

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on Fundamental and Applied Aspects of
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BOOK OF ABSTRACTS

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Abbreviations

PL – Plenary Lecture
SL – Section Lecture
O – Oral Presentation
P – Poster Presentation

Topics

A – Education and History
B – Spectroscopy, Molecular Structure, Physical Chemistry of Plasma
C – Kinetics, Catalysis
D – Nonlinear Dynamics, Oscillatory Reactions, Chaos
E – Electrochemistry
F – Biophysical Chemistry, EPR investigations of Bio-systems
G – Organic Physical Chemistry
H – Material Science
I – Photochemistry, Radiation Chemistry, Photonics
J – Macromolecular Physical Chemistry
K – Environmental Protection, Forensic Sciences, Geophysical Chemistry, Radiochemistry, Nuclear Chemistry
L – Phase Boundaries, Colloids, Liquid Crystals, Surface-Active Substances
M – Complex Compounds
N – Food Physical Chemistry
O – Pharmaceutical Physical Chemistry

N-05-P

TG-DTG ANALYSIS OF FRUIT-BASED WASTE PYROLYSIS: A CASE STUDY OF GOJI BERRY MESOCARP

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ABSTRACT
This work considers possible uses of fruit-based waste for the production of valuable chemicals and biofuel precursors through recycling by thermochemical conversion. Slow pyrolysis of Goji berry mesocarp (GBM) as sugar-rich feedstock was investigated using simultaneous thermal analysis (STA) measurements in non-isothermal conditions. Results reveal that pyrolysis of GBM represents a promising route to obtain important key platform chemical - 5-hydroxymethylfurfural (5-HMF). It was found that autocatalytic dehydration of fructose (in a presence of Lewis acids) is responsible for production of 5-HMF at a low heating rate (5.0 K/min) with a maximum 5-HMF theoretical yield of 63.20 %. Higher heating rates (10.0 and 15.0 K/min) trigger fructose autogenesis behavior which opens the transferability channel to glucose engagement for 5-HMF theoretical high yield production.