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Journal of
Material Engineering & Applications

Abstract

Methylimidazolium N-ethylamine-based ionic liquid: Synthesis and application as a Novel ionizing label of carbohydrates

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Abstract:
The synthesis of novel low-viscosity methylimidazolium N-ethylamine (MIEA) was achieved successfully with good yield, using N-methylimidazole and tert-butyl N-(2-bromoethyl) carbamate as starting materials. Due to the prerequisite for the sensitive analysis of carbohydrates by mass spectrometric techniques, the MIEA is a suitable reagent for reductive amination of the carbonyl group in carbohydrates with ionizing labels. This work illustrates that MIEA represents one of the important multifunctional oligosaccharide label for glycan reporting and identification using UPLC/ESI-QTOF and by MALDI-TOF mass spectrometry. The reductive amination process is investigated with exemplified by labelling N-glycans from the model glycoproteins such: RNase B, horseradish peroxidase (HRP), and Bovine lactoferrin. Moreover, we also produced MIEA glycan profiles which are comparable to the corresponding 2-AB labelled glycan derivatives, as observed that in the result obtained. The principal factors that affect MIEA – label of glycan were showed improved ESI ionization efficiency over the respective 2-AB derivatives. Experimentally, this phenomenon clarified with detection sensitivity in the low picomole and high femtomole range.

Biography:
Ahmed M. Senan graduated from the Institute of Physical Chemistry and Industrial Catalysis at Huazhong University of Science and Technology, China with a PhD in Chemistry. He obtained a HUST Academic Excellence award as Outstanding International Student (2015-2016). Since 2017, he is Assistant Professor at the College of Food Science and Technology at Nanjing Agricultural University, China.

Publication of speakers:

- Ahmed M. Senan etc al..1-(2-Aminoethyl)-3-methyl-1H-imidazol-3-ium tetrafluoroborate: synthesis and application in carbohydrate analysis
- Ahmed M. Senan etc al..Electronic Supplementary Materials: Transformation of methyl linoleate to its conjugated derivatives with simple Pd(OAc)2/Lewis acid catalystPreprint
- Ahmed M. Senan etc al..Transformation of Methyl Linoleate to its Conjugated Derivatives with Simple Pd(OAc)2/Lewis Acid Catalyst
- Ahmed M. Senan etc al.. Exploring the Potential of High-Voltage Electric Field Cold Plasma (HVCP) Using a Dielectric Barrier Discharge (DBD) as a Plasma Source on the Quality Parameters of Carrot Juice.
- Ahmed M. Senan etc al..Non-redox metal ions accelerated olefin isomerization by Palladium(II) catalysts: DFT calculations supporting the experimental data.

19th World Congress on Material Chemistry & Nano Materials; August 26, 2020, Dubai, UAE.

Citation: Ahmed M. Senan, Methylimidazolium N-ethylamine-based ionic liquid: Synthesis and application as a Novel ionizing label of carbohydrates, Material Chemistry 2020,August 26,2020,Dubai,UAE.