

Close

Web of Science  
Page 1 (Records 1 -- 1)

Print

**Record 1 of 1****Title:** Deep eutectic solvents-halophilic cellulase system: An efficient route for in situ saccharification of lignocellulose**Author(s):** Gunny, AAN (Gunny, Ahmad Anas Nagoor); Arbain, D (Arbain, Dachyar); Javed, M (Javed, Muhammad); Baghaei-Yazdi, N (Baghaei-Yazdi, Namdar); Gopinath, SCB (Gopinath, Subash C. B.); Jamal, P (Jamal, Parveen)**Source:** PROCESS BIOCHEMISTRY Volume: 81 Pages: 99-103 DOI: 10.1016/j.procbio.2019.03.003 Published: JUN 2019**Times Cited in Web of Science Core Collection:** 0**Total Times Cited:** 0**Usage Count (Last 180 days):** 4**Usage Count (Since 2013):** 4**Cited Reference Count:** 20

**Abstract:** Pre-treatment of lignocellulosic biomass is essential for the cost-effective saccharification process to produce fermentable sugars. In this study, Deep Eutectic Solvents (DESs) and halophilic cellulase system were used as a new green and cost-effective approach for lignocellulose hydrolysis. The stability and compatibility between DES and halophilic cellulase for lignocellulose hydrolysis were investigated by monitoring the stability of halophilic cellulase in the occurrence of different concentrations of DESs. It was found that halophilic cellulase showed higher stability in the occurrence of 10-20% (v/v) DES. It has been noticed that 20% of DESs, enhanced 2-3 folds in the release of glucose. The compatibility of the DES-halophilic cellulase system has been further evaluated and improved the saccharification efficiency even at high solid loadings. Using the system, saccharification of the rice husk produced three folds of glucose higher than the untreated sample. The yield was estimated to be higher than 1 mM of glucose using the halophilic cellulase-DES system with the hydrolysis for 36 h. DESs-halophilic cellulase system offers a good alternative compared to the available lignocelluloses pre-treatment method in terms of cost, environmental and compatibility with enzyme aspects.

**Accession Number:** WOS:000469158700014**Language:** English**Document Type:** Article**Author Keywords:** Deep eutectic solvent; Saccharification; Lignocellulose; Halophilic cellulase**KeyWords Plus:** IONIC LIQUIDS; BIOMASS; HYDROLYSIS**Addresses:** [Gunny, Ahmad Anas Nagoor] Univ Malaysia Perlis, Fac Engr Technol, Dept Chem Engr Technol, Padang Besar 02100, Perlis, Malaysia.

[Gunny, Ahmad Anas Nagoor] Univ Malaysia Perlis, Ctr Excellence Biomass Utilizat, Sch Bioproc Engr, Arau 02600, Perlis, Malaysia.

[Arbain, Dachyar; Gopinath, Subash C. B.] Univ Malaysia Perlis, Sch Bioproc Engr, Perlis, Malaysia.

[Arbain, Dachyar; Gopinath, Subash C. B.] Univ Malaysia Perlis, Inst Nano Elect Engr, Perlis, Malaysia.

[Arbain, Dachyar] Ctr Renewable Energy, STT PLN, Jalan Lingkar Luar Barat Kosambi, Jakarta 11750, Indonesia.

[Javed, Muhammad; Baghaei-Yazdi, Namdar] Biotech Consultants Ltd BTCL, 263 Frimley Green Rd, Camberley GU16 6LD, Surrey, England.

[Jamal, Parveen] Int Islamic Univ Malaysia, Dept Biotechnol Engr, Bioenvironm Engr Res Ctr, Fac Engr, Kuala Lumpur 50728, Malaysia.

**Reprint Address:** Gunny, AAN (reprint author), Univ Malaysia Perlis, Fac Engr Technol, Dept Chem Engr Technol, Padang Besar 02100, Perlis, Malaysia.**E-mail Addresses:** ahmadanas@unimap.edu.my**Publisher:** ELSEVIER SCI LTD**Publisher Address:** THE BOULEVARD, LANGFORD LANE, KIDLINGTON, OXFORD OX5 1GB, OXON, ENGLAND**Web of Science Categories:** Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology; Engineering, Chemical**Research Areas:** Biochemistry & Molecular Biology; Biotechnology & Applied Microbiology; Engineering**IDS Number:** HZ9EN**ISSN:** 1359-5113**eISSN:** 1873-3298**29-char Source Abbrev.:** PROCESS BIOCHEM**ISO Source Abbrev.:** Process Biochem.**Source Item Page Count:** 5**Funding:**

Funding Agency	Grant Number
Ministry of Higher Education (MOHE), Malaysia	FRGS 9003-00391
School of Bioprocess Engineering, Universiti Malaysia Perlis	

We thank the Ministry of Higher Education (MOHE), Malaysia for the financing aid under the Fundamental Research Grant Scheme (FRGS 9003-00391) and to the School of Bioprocess Engineering, Universiti Malaysia Perlis for the support.

**Output Date:** 2019-08-01

Close

Web of Science  
Page 1 (Records 1 -- 1)

Print



Clarivate

Accelerating innovation

© 2019 Clarivate Copyright notice Terms of use Privacy statement Cookie policy

Sign up for the Web of Science newsletter Follow us

