



UMS
UNIVERSITI MALAYSIA SABAH



eNewsletter

INTRODUCTION

University Malaysia Sabah intends to increase the visibility of universities in global rankings. Through this eNewsletter, university's achievements, products and international activities at UMS distributed to all institutions, especially outside of Malaysia. Email of notification was sent to the institution on March 21, 2016. We also requested a suggestions regarding when and how this eNewsletter to be sent to the institution according to your needs.

OBJECTIVE

The main objective of this eNewsletter is to create an alternative medium for displaying information about UMS.

- eNewsletter is a monthly publication throughout the year.
- eNewsletter contains three (3) segments,
 - the achievement of the university,
 - product of the university; and
 - university international seminar / conferences.

ABOUT UMS



UMS Corporate Video. More video at [UMS2U](#).

ACHIEVEMENT



UMS accorded 4-star rating

KOTA KINABALU: [Universiti Malaysia Sabah](#) (UMS) has been accorded the four-star by the Malaysia Research Assessment MyRA 2015.

The MyRA instrument is used to gauge the research, development and innovation (R&D&I) activities in public universities and tertiary institutions with university status, the branch campuses of foreign universities and universities

UMS ADMISSION

UNDERGRADUATE

POSTGRADUATE

PUBLICATION

INDEXED BY SCOPUS

colleges.

The outcome of the R&D&I assessment and achievement is categorised into six levels, with 'six stars' being the highest level and 'one star' the lowest.

The official result was announced by the Higher Education Department Director of Excellence Planning Division Professor Dr Raha Abdul Rahim.

UMS Vice Chancellor Professor Datuk Dr Mohd Harun Abdullah said the results were made known in an official letter dated Oct 13.

"Since 2013, the UMS MyRA recognition has improved from three-star to four-star in 2015. This is the result of cooperation from all UMS staff and their commitment towards supporting the management to bring the university to new heights," he said.

Source: Daily Express Sabah

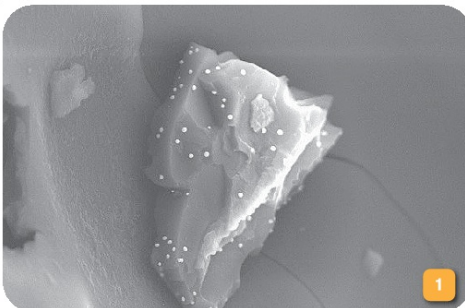
PRODUCT

Synthesis, Characterization, and Catalytic Activity Carbon

Based Bifunctional Catalyst

Highly branched paraffin has high potential as substitute for methyl-tertiary-butylether (MTBE) as fuel oxygenate to increase fuel's Research Octane Number (RON) since the banned on MTBE usage in some parts of US due to the groundwater contamination problem that it may cause. A bifunctional catalyst, having dual active sites such as metal and acid sites, has shown to be capable of catalysing isomerization and hydrogenation reactions in producing branched paraffin; a cleaner source of fuel additive. The

current synthesis of carbon-based bifunctional catalyst is energy extensive as it requires high heat treatment to reduce the metal complex to its element form. Furthermore, the structures of the carbon supports are mostly graphitic or crystalline as the precursor. The use of amorphous carbon as the support is not well understood and besides, it is advantageous as it is capable of hosting acidic functional groups. Hence, using amorphous carbon as the support for acid and metal sites is expected to produce highly effective carbon-based bifunctional catalyst. Therefore, this paper reports the study of bifunctional catalyst synthesis using an amorphous carbon with polycyclic aromatic structure as support. The methodology consists of two parts: synthesis of amorphous carbon and functionalization, and characterization. The glucose precursor was pyrolyzed at 400°C under nitrogen atmosphere, after that it was functionalized with fuming sulphuric acid (20wt% free SO₃). The functionalized char was deposited with hexachloroplatinic acid as the metal precursor in aqueous solution (H₂PtCl₆) was used to obtain a content of about 0.5% Pt (wt%). The impregnated solution was reduced with formaldehyde to reduce the hexachloroplatinum complex to platinum on the surface of the support. The characterization includes the analysis using FTIR, back titration for the total acidity, SEM, EDX and XRD. The FTIR analysis, showed noticeable peaks necessary for -SO₃H, -COOH and -OH acidic groups after the functionalization process. The structures for both SC sample and PtC sample were identified as amorphous as seen from the XRD analysis result as the spectrum shows broad band peaks as opposed to sharp peaks assigned to graphitic structure. Platinum deposition was successful as observed from the XRD spectrum and EDX result which is visible through SEM magnification on PtC as white bright spots. The total acidity of the sample decreased 13.5% after the impregnation of platinum suggesting that the acidic groups were replaced by the metal particles. The overall analyses have shown that -SO₃H, -COOH and -OH acidic groups were successfully functionalized and platinum was also deposited on the surface of the support. The newly created sugar catalyst with platinum has potential to be a bifunctional catalyst for the synthesis of branched paraffin via isomerization of paraffin as a cleaner fuel additive alternative than MTBE.



RESEARCH
HIGHLIGHTS

ACHIEVEMENT:
Publication in Procedia
Engineering Journal, Elsevier

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Figure 1: SEM image of bifunctional catalyst sample at 4500x magnification

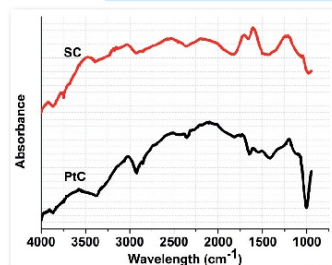


Figure 2: FTIR Spectra of SC and PtC Samples

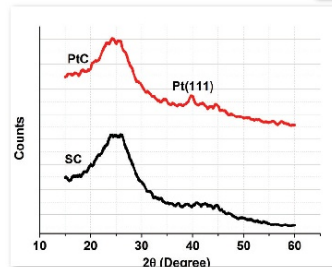


Figure 3: XRD Patterns for SC and PtC Samples

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PAGE 07



ICCST2016

The 3rd International Conference on
Computational Science and Technology 2016

28th – 30th November 2016
Kota Kinabalu, Malaysia
www.iccstec.org





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BORNEO BIOTECH SYMPOSIUM 2016

Biotechnology & National Development

7th and 8th December 2016

Biotechnology Research Institute
Universiti Malaysia Sabah
Kota Kinabalu
Malaysia





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International Conference on Marine Science & Aquaculture

"New Frontier in Sustainable Marine Bioresources"

14th & 15th March 2017 | Kota Kinabalu, Sabah, Malaysia



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