C1

**LEMBAR**
**HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW***
**KARYA ILMIAH : JURNAL ILMIAH**

| | | |
|---|---|---|
| Judul Jurnal Ilmiah (Artikel) | : | Synthesis of Zeolite from Sugarcane Bagasse Ash Using Cetyltrimethylammonium Bromide as Structure Directing Agent |
| Jumlah Penulis | : | 3 orang |
| Status Pengusul | : | Penulis Utama |
| Identitas Jurnal Ilmiah | : | a. Nama Jurnal : Indonesian Journal of Chemisty<br>b. Nomor ISSN : 1411-9420 (print); 2460-1578 (on-line)<br>c. Vol, No., Bln Thn : Vol 18, No 1 (2018), Hal. 159 -165<br>d. Penerbit : Gadjah Mada University<br>e. DOI artikel (jika ada) : https://doi.org/10.22146/ijc.22197<br>f. Alamat web jurnal : https://jurnal.ugm.ac.id/ijc/<br>Alamat Artikel : https://jurnal.ugm.ac.id/ijc/article/view/22197/18879<br>g. Terindex : Jurnal Internasional bereputasi (Q3) terindeks SCOPUS (SJR=0,215) |

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4. **Kelengkapan unsur dan kualitas terbitan:**
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Semarang, 30 Maret 2020
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**LEMBAR**
**HASIL PENILAIAN SEJAWAT SEBIDANG ATAU *PEER REVIEW***
**KARYA ILMIAH : JURNAL ILMIAH**

Judul Jurnal Ilmiah (Artikel) : Synthesis of Zeolite from Sugarcane Bagasse Ash Using Cetyltrimethylammonium Bromide as Structure Directing Agent

Jumlah Penulis : 3 orang

Status Pengusul : Penulis Utama

Identitas Jurnal Ilmiah :
- a. Nama Jurnal : Indonesian Journal of Chemisty
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- g. Terindex : Jurnal Internasional bereputasi (Q3) terindeks SCOPUS (SJR=0,215)

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Semarang, 23 Maret 2020
Reviewer 2

Drs. Gunawan, M.Si, Ph.D
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| **Total = (100%)** | **39,6** | **39** | **39,3** |

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1. A Rahman, A Ismail, D Jumbianti, S Magdalena, H Sudrajat, 2009, Synthesis of copper oxide nano particles by using Phormidium cyanobacterium, *Indones. J. Chem.,* 9 (3), 355-360
2. H Winarno, 2009, Benzophenone glucoside isolated from the ethyl acetate extract of the bark of mahkota dewa [Phaleria macrocarpa (Scheff.) Boerl.] and its inhibitory activity on leukemia L121, *Indones. J. Chem.,* 9 (1), 142-145
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# Synthesis of Zeolite from Sugarcane Bagasse Ash Using Cetyltrimethylammonium Bromide as Structure Directing Agent

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## Abstract

*The purpose of this research is to synthesize zeolite from sugarcane bagasse ash using cetyltrimethylammonium bromide as structure directing agent. This research used cetyltrimethylammonium bromide surfactant to invent the high porosity, surface area, acidity and thermal stability of synthesized zeolite. The Silica was extracted by alkaline fusion using sodium hydroxide solution. The synthesis was conducted by hydrothermal process at 100 °C for 7 days, ageing process for 24 h and calcination at 500 °C for 5 h. The ratio of Si/Al (v/v) was 1, 15 and 25, meanwhile the concentration of cetyltrimethylammonium bromide was $5x10^{-4}$ M, $1x10^{-3}$ M and $1x10^{-2}$ M. The result showed all of product have strong absorbance at 950–1050 $cm^{-1}$ and 620–690 $cm^{-1}$, 420–460 $cm^{-1}$, double ring at 520–570 $cm^{-1}$, pore opening at 300–370 $cm^{-1}$. Vibration of –OH as silanol group or water was indicated by broad absorbance at 3400–3450 $cm^{-1}$. The diffractograms XRD showed that the product had high crystallinity. The composition of product on ratio Si/Al 1 with concentration of cetyltrimethylammonium $10^{-2}$ M is sodalite, the ratio Si/Al 15 and 25 are NaP1 and $SiO_2$ quartz and contain 12.23% and 12.19% of Si, 4.17% and 13.18% of Al, respectively. Observation on SEM revealed that the crystal produced using cetyltrimethylammonium bromide were homogenous and regular in shape.*

## Keywords

surfactant; cetyltrimethylammonium bromide; synthesis; zeolite; sugarcane bagasse

## Full Text:

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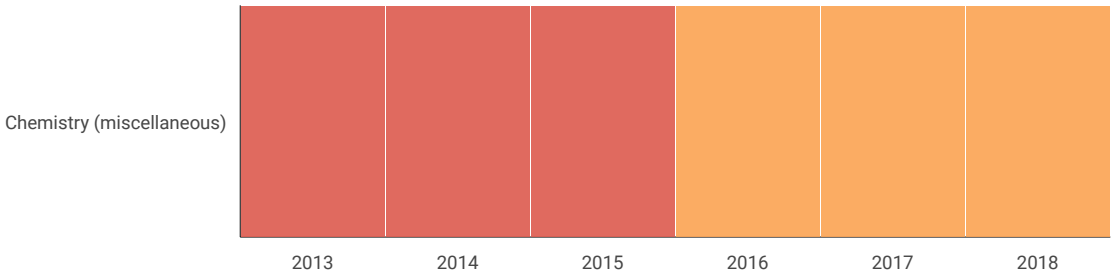


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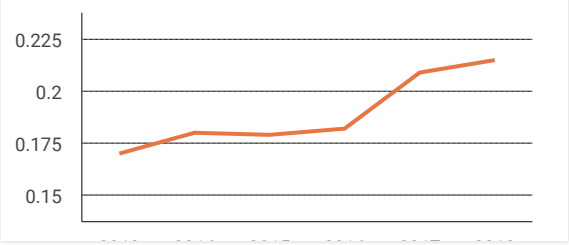


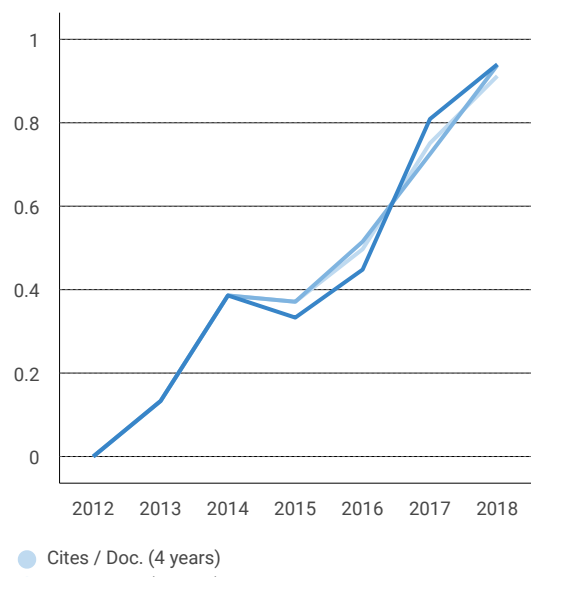


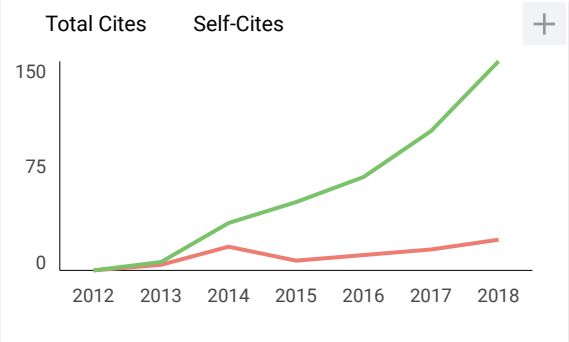


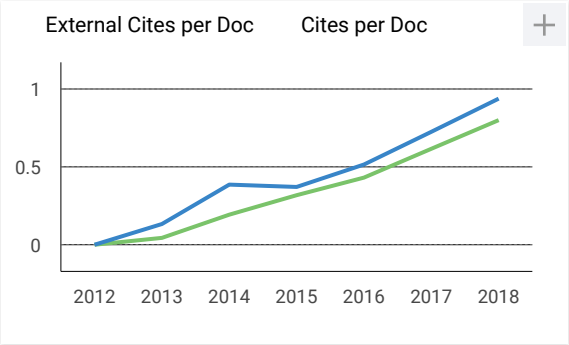


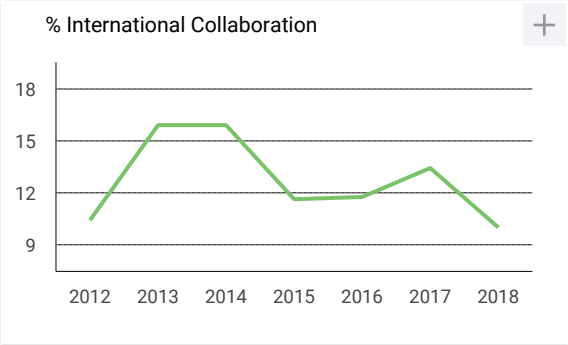


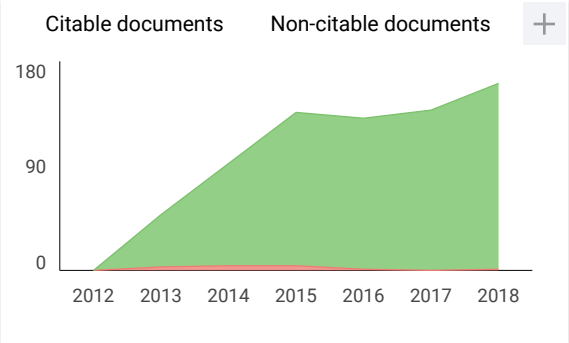


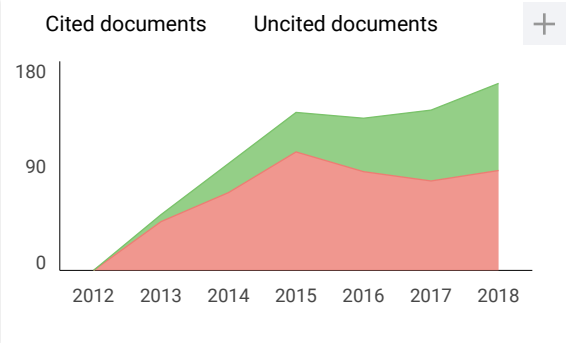

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