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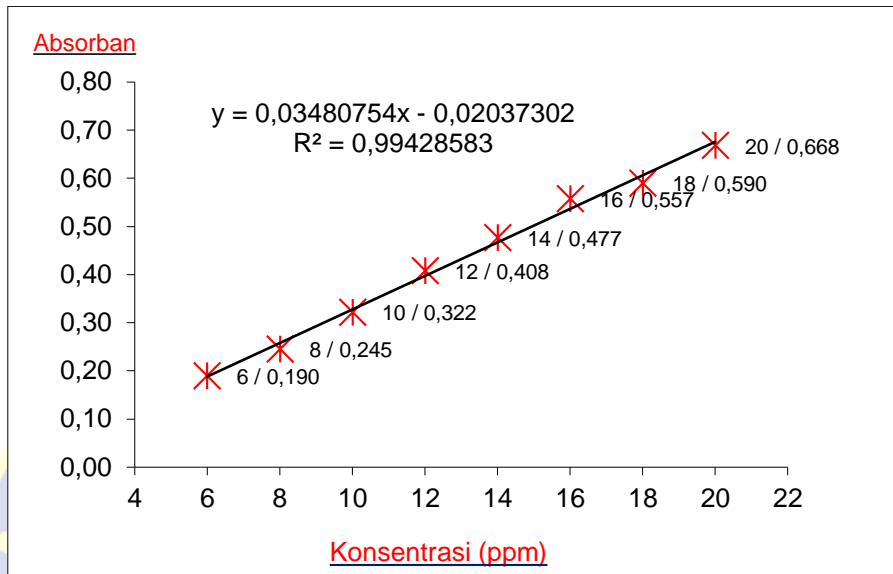
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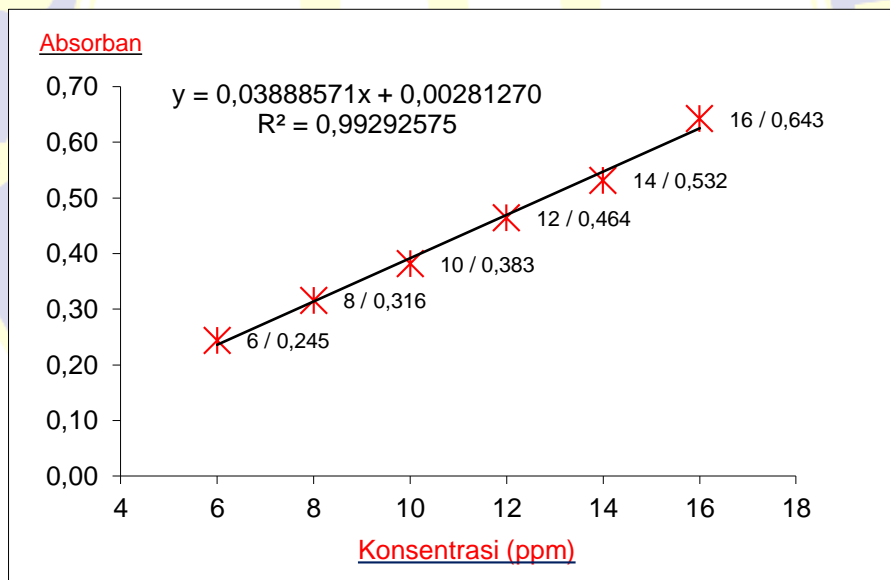


LAMPIRAN 1

KURVA KALIBRASI



(a)



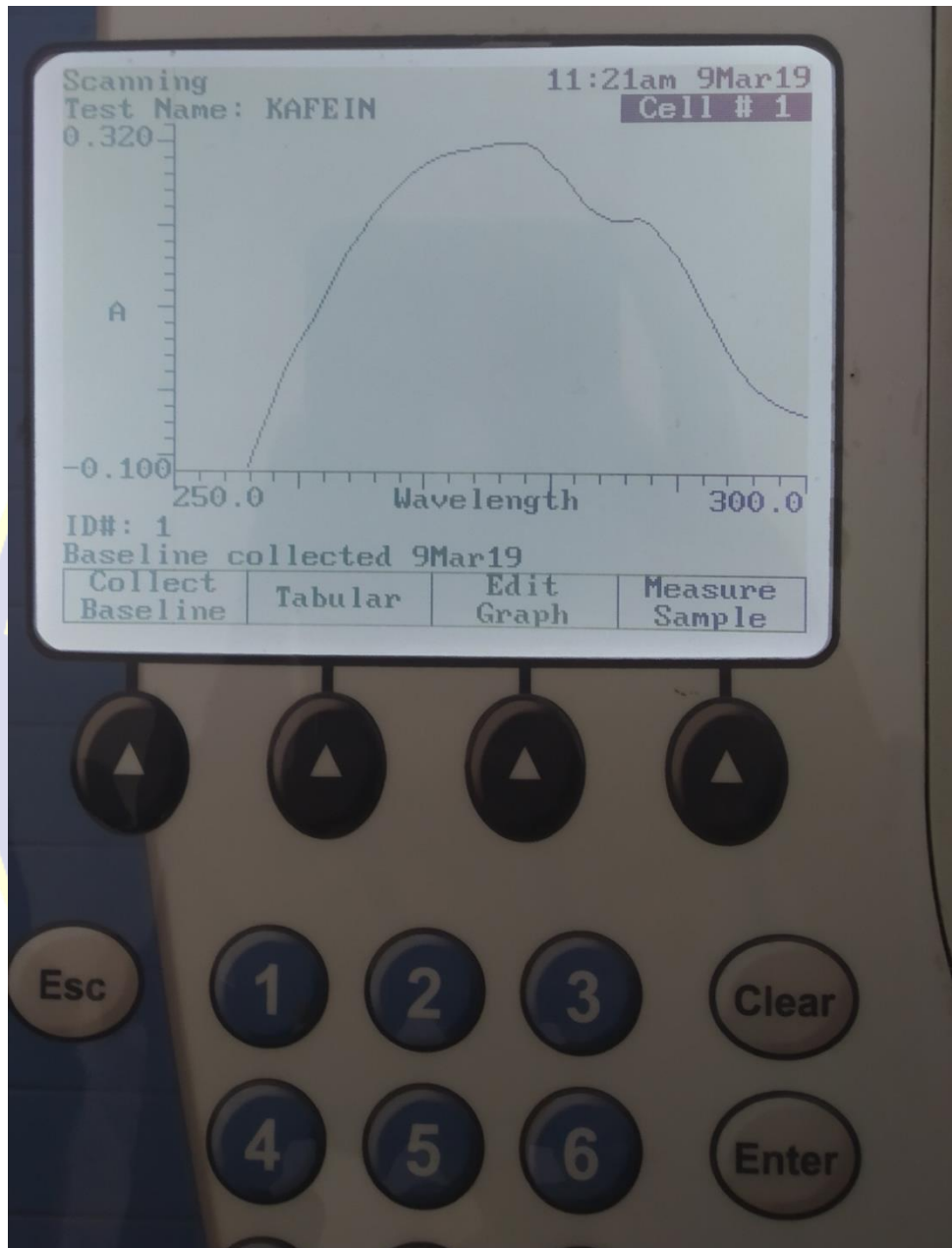
(b)

Gambar VII.1 (a) Kurva kalibrasi Kafein-Metanol

(b) Kurva kalibrasi batas deteksi

LAMPIRAN 2

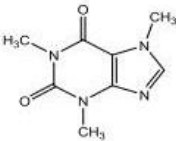
PANJANG GELOMBANG KAFEIN-METANOL



Gambar VII.2 Grafik panjang gelombang Kafein dalam pelarut Metanol


LAMPIRAN 3

COA KAFEIN

Certificate of Analysis	
ISO GUIDE 34 ANAB Cert# AR-1470	CAFFEINE CERTIFIED REFERENCE MATERIAL
ISO/IEC 17025 ANAB Cert# AT-1467	
CERTIFIED PURITY: 99.95% , $U_{CRM} = \pm 0.06\%$ $k = 2.0$ (Mass Balance/as is basis)	
NOMINAL PACKAGE SIZE: 1g	
CATALOG #: PHR1009	LOT #: LRAB7780
CERTIFICATE VERSION: LRAB7780.1	ISSUE DATE: 24 April 2018
<i>Note: Certificates may be updated due to Pharmacopeial Lot changes or the availability of new data. Check our website at: www.sigma-aldrich.com for the most current version.</i>	
CRM EXPIRATION: 31 December 2022 (Proper Storage and Handling Required).	
RECEIPT DATE: _____	
<i>Note: this space is provided for convenience only and its use is not required.</i>	
STORAGE: Store at Room Temperature/Protect from Light, keep container tightly closed. Attachment of a 20 mm aluminum crimp seal recommended for unused portions.	
CHEMICAL FORMULA: C ₈ H ₁₀ N ₄ O ₂	MW: 194.2
PHYSICAL DESCRIPTION: White powder in amber vial	CAS #: 58-08-02
HAZARDS: Read Safety Data Sheet before using. All chemical reference materials should be considered potentially hazardous and should be used only by qualified laboratory personnel.	
SIGMA-ALDRICH	
Page 1 of 6	

Gambar VII.3 Coa Kafein

LAMPIRAN 4
COA TEOFILIN

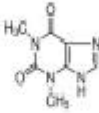


sigmaaldrich.com
 3030 Spruce Street, Saint Louis, MO 63103, USA
 Website: www.sigmaaldrich.com
 Email USA: techserv@sigmaaldrich.com
 Outside USA: eurtechserv@sigmaaldrich.com

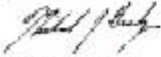
Certificate of Analysis

Product Name:
Theophylline - anhydrous, 2.99%, powder

Product Number: T1633
Batch Number: MK068701
Brand: SIGMA
CAS Number: 58-05-9
MOL Number: MFCD00079610
Formula: C7H8N4O2
Formula Weight: 180.16 g/mol
Quality Release Date: 03 AUG 2018
Recommended Re-test Date: JUN 2020



Test	Specification	Result
Appearance (Color)	White to Off-White	White
Appearance (Form)	Powder	Powder
Solubility (Color)	Colorless	Colorless
Solubility (Turbidity)	Clear	Clear
50 mg/ml, 1 M NH ₄ OH		
Loss on Drying	≤ 0.5 %	0.2 %
Infrared Spectrum	Conforms to Structure	Conforms
Purity (HPLC)	≥ 99 %	100 %
Recommended Re-test Period		
2 Years		



Michael Grady, Manager
Quality Control
Milwaukee, WI, US

Gambar VII.4 Coa Teofilin

LAMPIRAN 5

COA ETILEN GLIKOL DIMETAKRILAT

SIGMA-ALDRICH sigmaaldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
Website: www.sigmaaldrich.com
Email USA: techserv@sigma.com
Outside USA: euratechserv@sigma.com

Certificate of Analysis

Product Name: Ethylene glycol dimethacrylate - 98%, contains 90-110 ppm monomethyl ether hydroquinone as inhibitor

Product Number: 335661
Batch Number: 5HB13556
Brand: ALDRICH
CAS Number: 87-90-5
MDL Number: MFCD00008890
Formula: C10H14O4
Formula Weight: 198.22 g/mol
Storage Temperature: Store at 2 - 8 °C
Quality Release Date: 17 AUG 2017

C=CC(=O)OCCOC(=O)C=C

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
¹ H NMR Spectrum	Conforms to Structure	Conforms
Purity (GC)	≥ 97.5 %	98.1 %
MEHQ as Inhibitor	90 - 110 ppm	99 ppm


Michael Grady, Manager
Quality Control
Sheboygan Falls, WI USA

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at sigmaaldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

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Gambar VII.5 Coa Etilen Glikol Dimetakrilat

LAMPIRAN 6

COA AZOBISISOBUTYRONITRILE

SIGMA-ALDRICH sigma-aldrich.com

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Website: www.sigmaaldrich.com
Email USA: techserv@sigmaaldrich.com
Outside USA: eurtechserv@sigmaaldrich.com

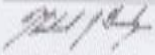
Certificate of Analysis

Product Name: Azobisisobutyronitrile - 12 wt. % in acetone

Product Number: 768375
Batch Number: MK000606
Brand: ALDRICH
Formula: GBH12N4
Formula Weight: 164.21 g/mol
Storage Temperature: Store at 2 - 8 °C
Quality Release Date: 27 APR 2018

CN(C)C(=O)N=C(C)C

Test	Specification	Result
Appearance (Color)	Colorless to Faint Yellow	Colorless
Appearance (Form)	Liquid	Liquid
Proton NMR Spectrum	Conforms to Structure	Conforms
Azobisisobutyronitrile	11 - 14 % wt	13 % wt
¹³ C NMR Spectrum	Conforms to Structure	Conforms
GCMS	Conforms to Structure	Conforms


Michael Draily, Manager
Quality Control
Milwaukee, WI US

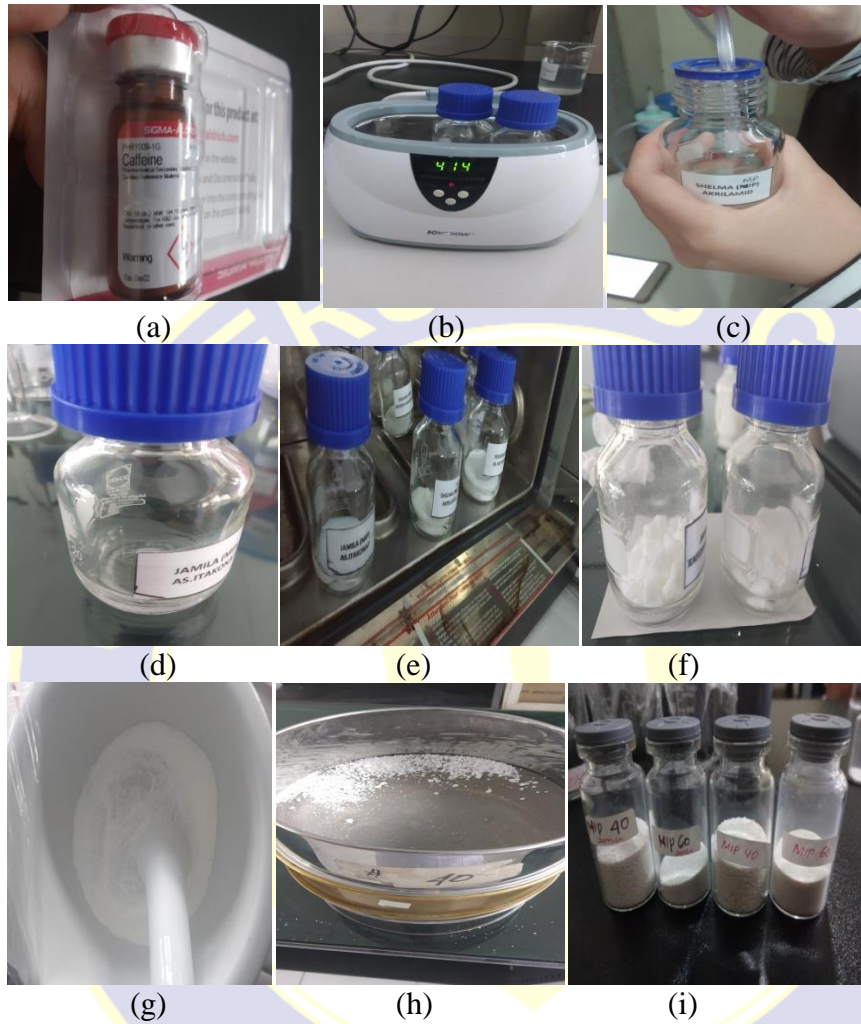
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Gambar VII.6 Coa AIBN

LAMPIRAN 7

DOKUMENTASI PENELITIAN



Gambar VII.7 Dokumentasi penelitian :

- (a) Kafein
- (b) Sonikasi
- (c) Pengaliran Gas Nitrogen
- (d) Larutan menjadi jernih
- (e) Diinkubasi 60°C 8 jam
- (f) Terbentuk polimer
- (g) Digerus dengan mortir
- (h) Diayak antara mesh 40 dan 60
- (i) Polimer

LAMPIRAN 8

EKSTRAKSI POLIMER METODE SONIKASI



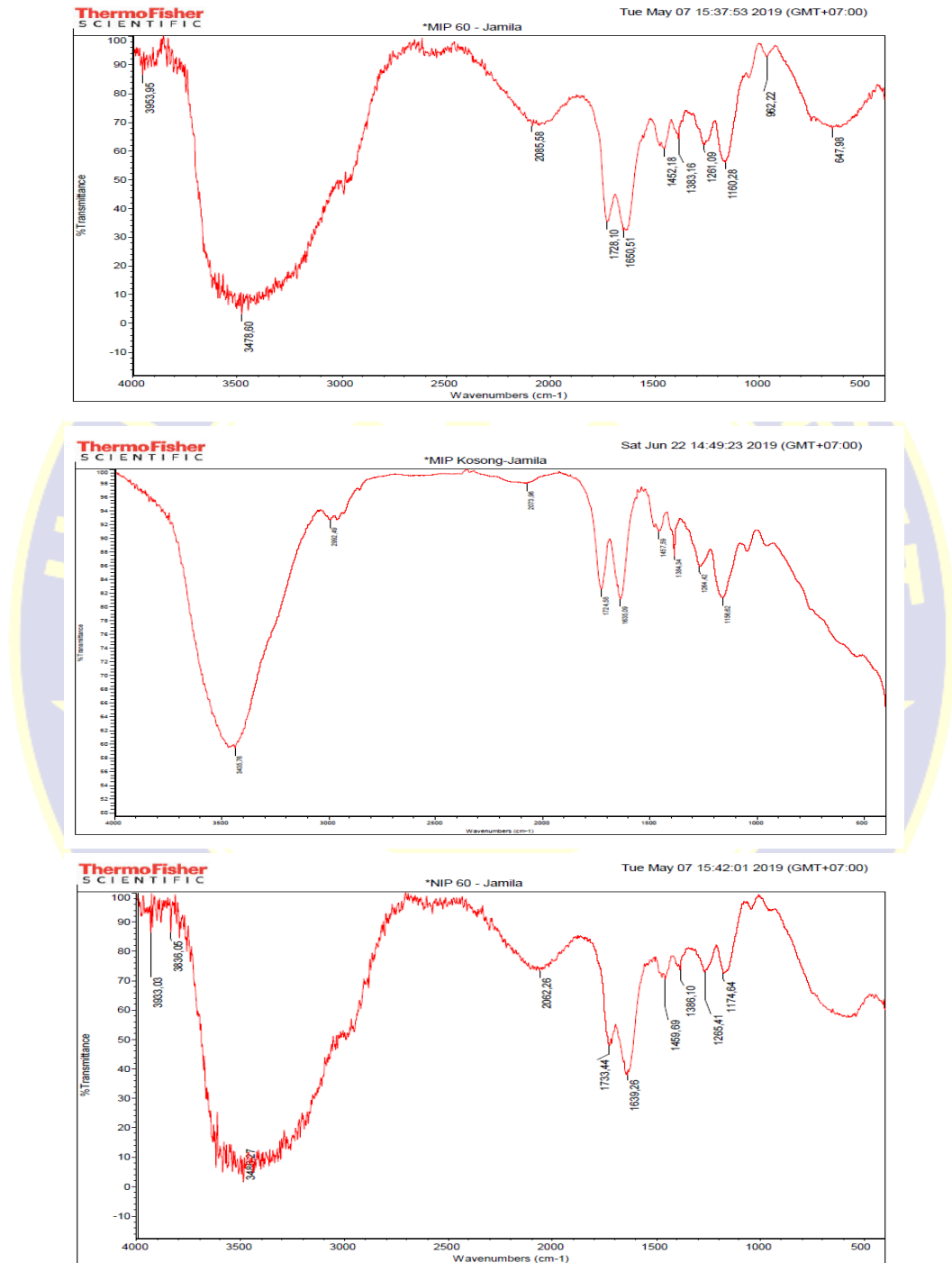
Gambar VII.8 Ekstraksi polimer metode sonikasi

Tabel VII.8
Hasil Ekstraksi Polimer dengan Metode Sonikasi

No.	Metanol	No.	Metanol	No.	Metanol	No.	Metanol
1	4,000	11	1,277	21	0,323	31	0,051
2	3,885	12	0,891	22	1,042	32	0,312
3	3,875	13	0,697	23	1,154	33	0,182
4	3,827	14	0,855	24	1,048	34	0,204
5	3,735	15	0,419	25	0,981	35	0,094
6	3,431	16	0,662	26	0,115	36	0,126
7	3,657	17	0,532	27	0,236	37	0,078
8	2,075	18	0,296	28	0,133	38	0,056
9	1,673	19	0,361	29	0,099	39	0,034
10	0,738	20	0,284	30	0,068	40	0,012

LAMPIRAN 9

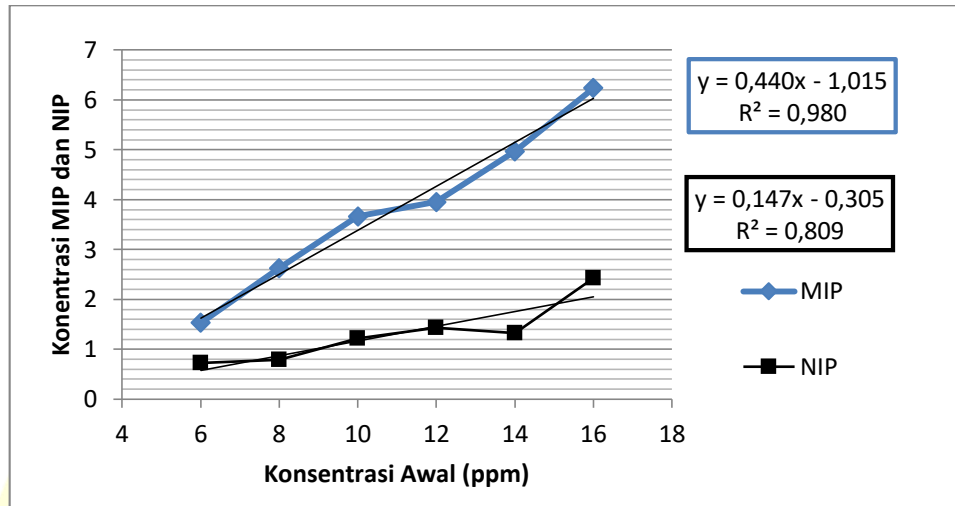
HASIL ANALISIS FTIR SORBEN MIP, MIP (-) *TEMPLATE* DAN NIP



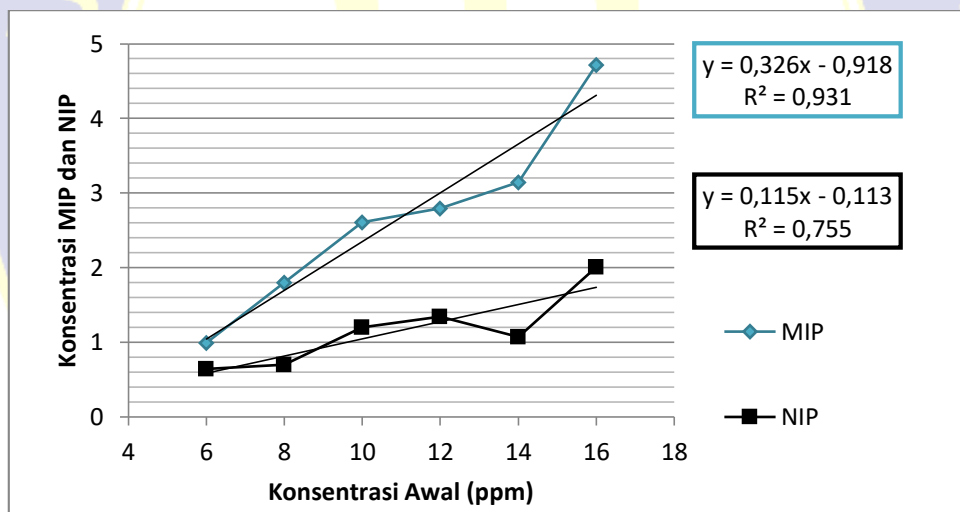
Gambar VII.9 Hasil Analisis FTIR Sorben MIP, MIP Tanpa *Template* dan NIP

LAMPIRAN 10

KEMAMPUAN KAPASITAS ADSORPSI DAN DESORPSI



(a)



(b)

Gambar VII.10 (a) Kurva kapasitas adsorpsi MIP dan NIP

(b) Kurva kapasitas desorpsi MIP dan NIP

LAMPIRAN 11

SELEKTIVITAS SORBEN MIP DAN PENGUJIAN SAMPEL

Tabel VII.11
Selektivitas Teofilin dan Kafein

Teofilin				Kafein			
ppm awal	ppm akhir	Selisih	%terjerap	ppm awal	ppm akhir	Selisih	%terjerap
14	13,415	0,622	4,34%	14	9,363	4,663	66,88%

Tabel VII.11
Persen Terjerap Kafein dalam Sampel

	MIP				NIP		
	ppm awal	ppm akhir	Selisih	%terjerap	ppm akhir	Selisih	%terjerap
Minuman berenergi	79.802	17,031	62,771	78,66%	76,175	3,627	4,54%