

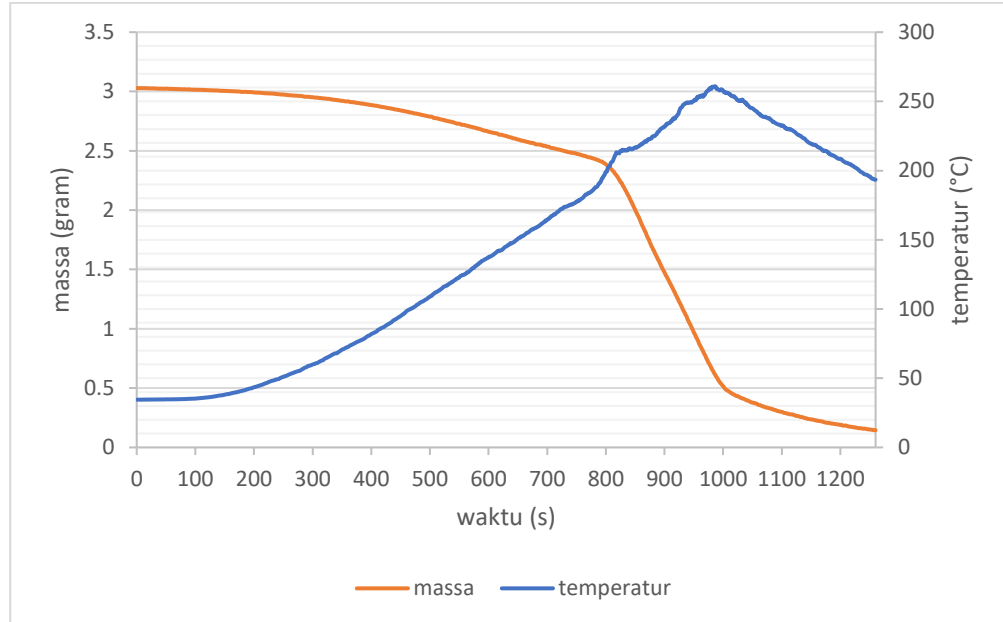
LAMPIRAN

LAMPIRAN A

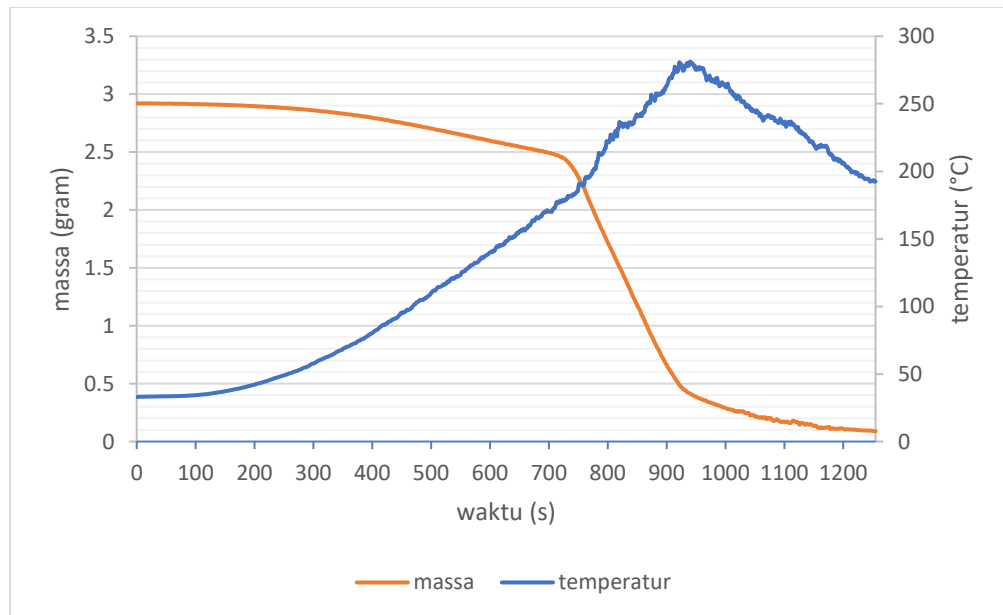
Grafik Hasil Pembakaran Biobriket Ampas Tebu (*Bagasse*)

1. Tekanan Pembriketan 50 kg/cm²

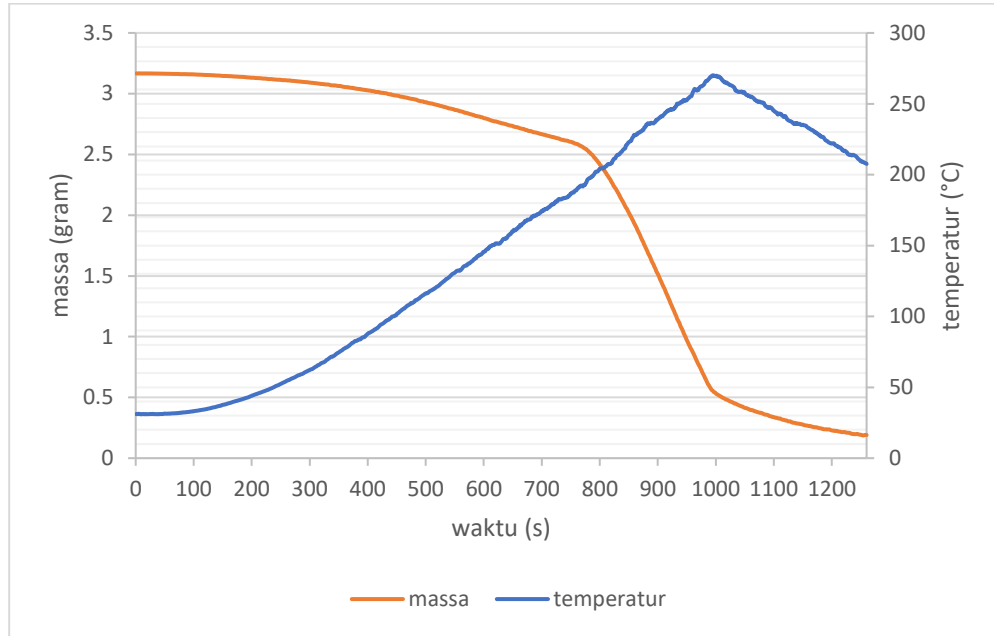
a. Pengujian 1



b. Pengujian 2

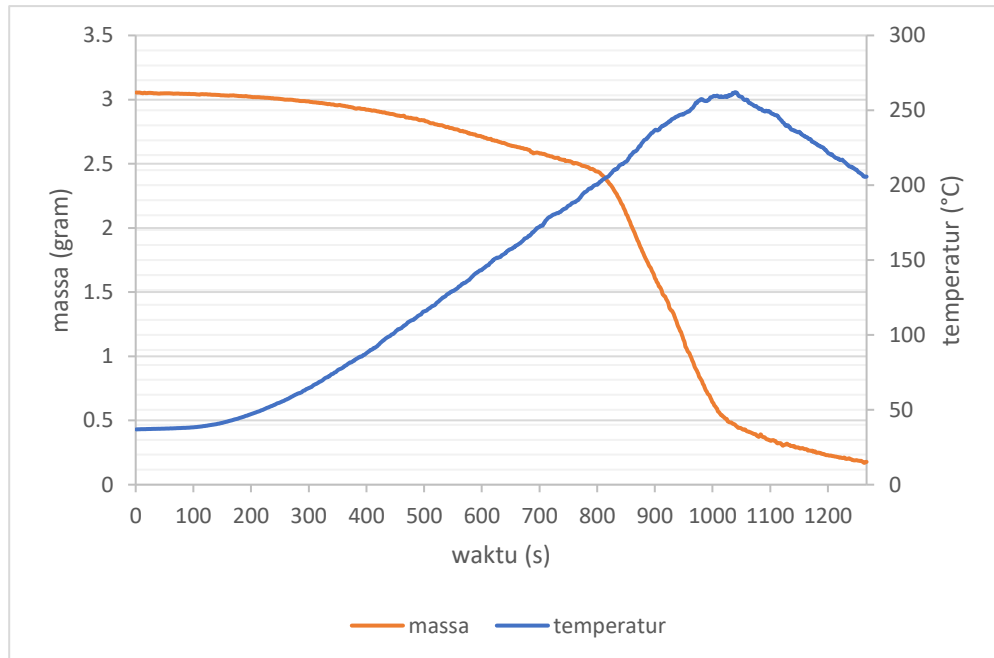


c. Pengujian 3

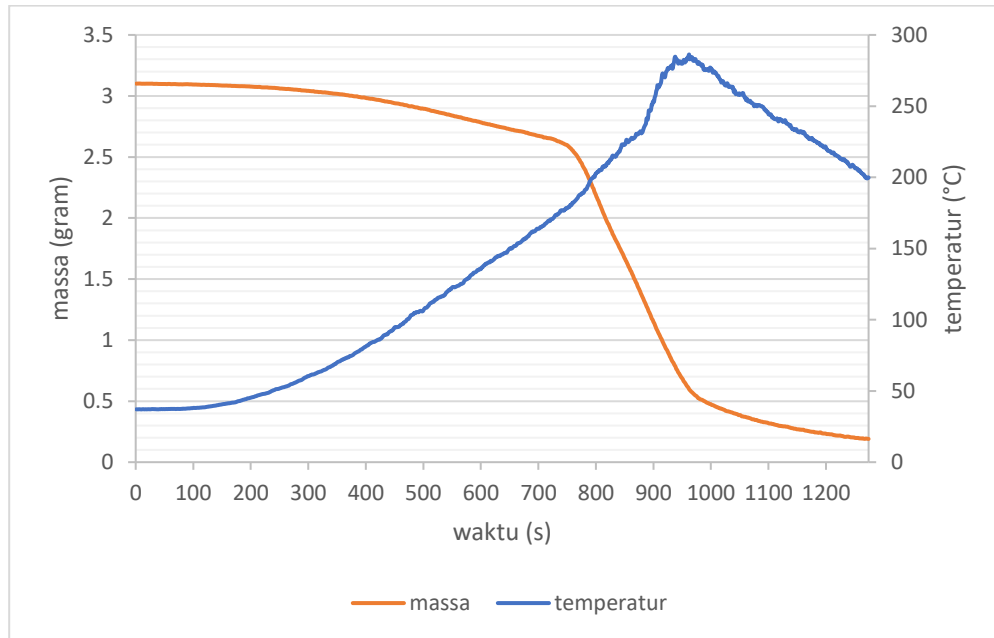


2. Tekanan Pembriketan 100 kg/cm²

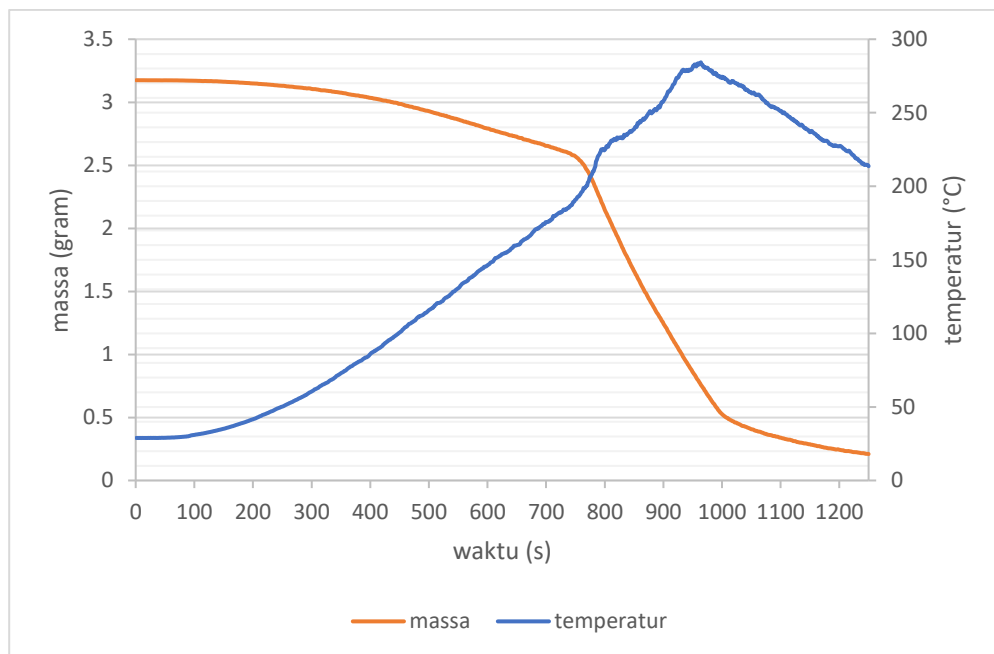
a. Pengujian 1



b. Pengujian 2

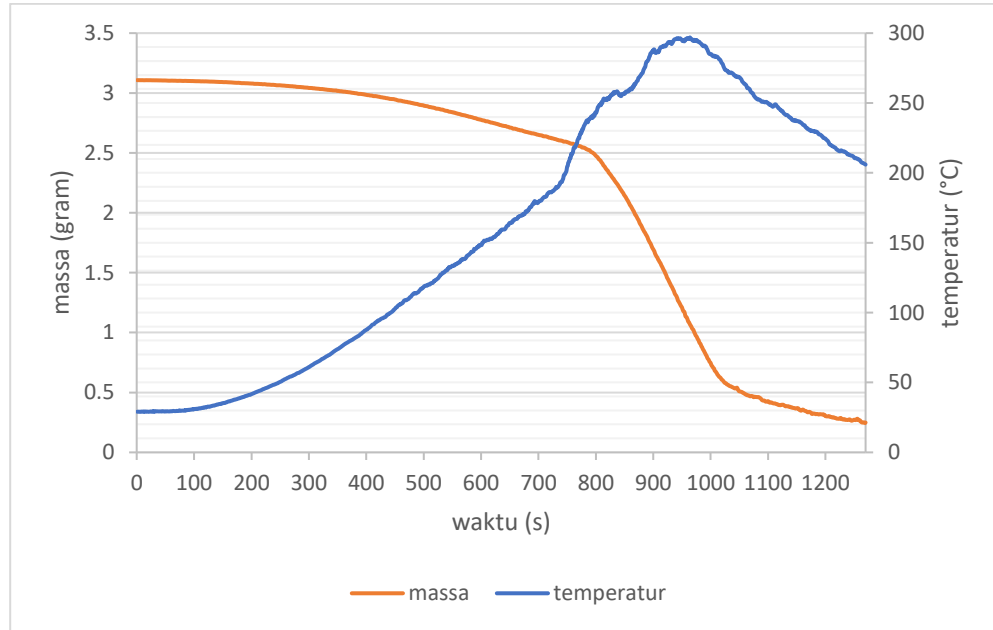


c. Pengujian 3

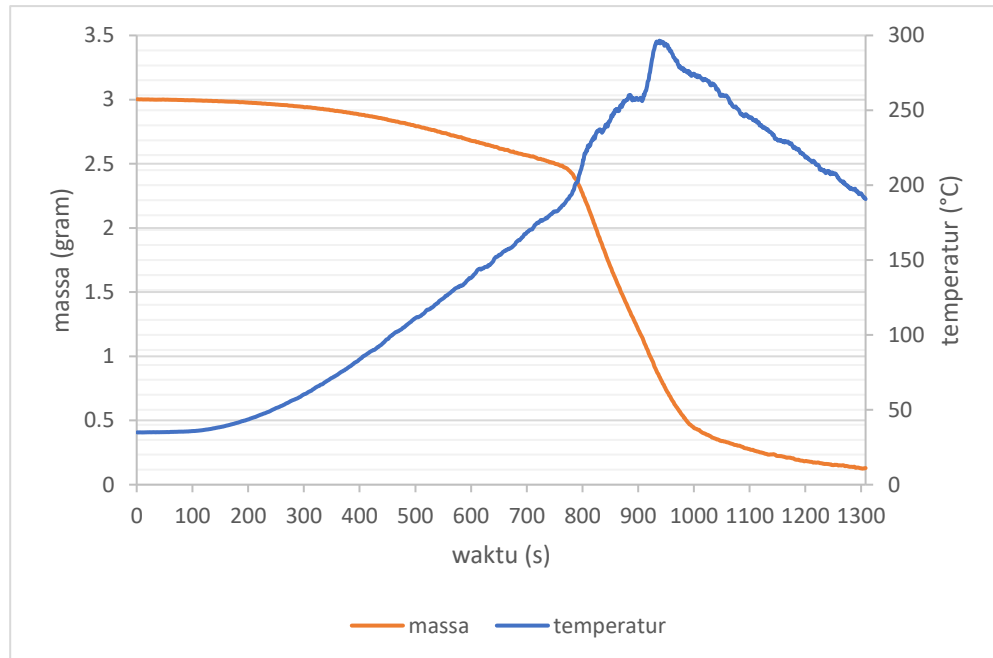


3. Tekanan Pembriketan 150 kg/cm²

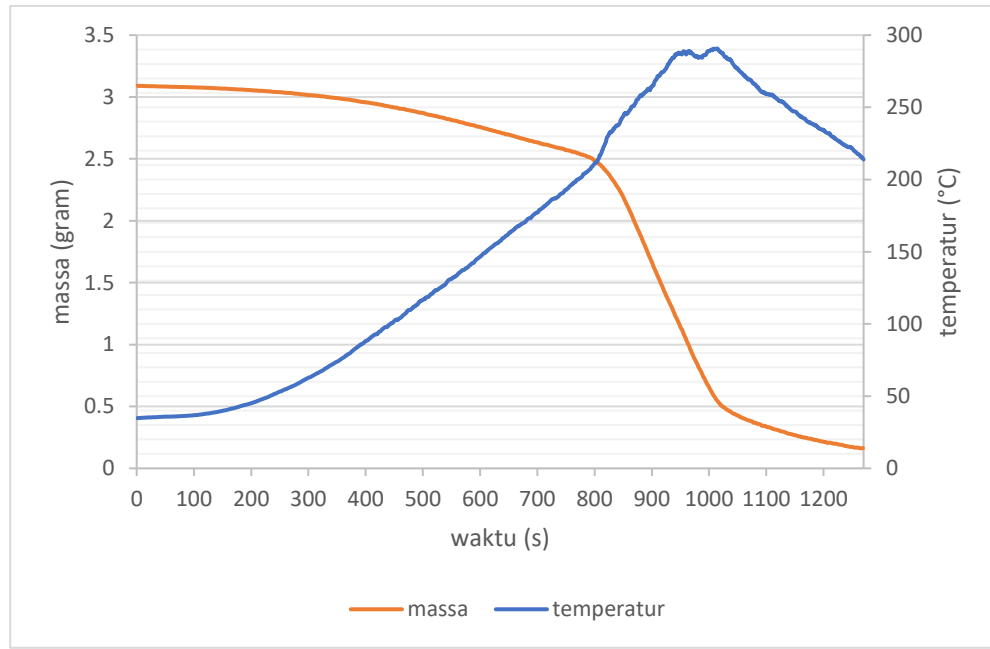
a. Pengujian 1



b. Pengujian 2



c. Pengujian 3

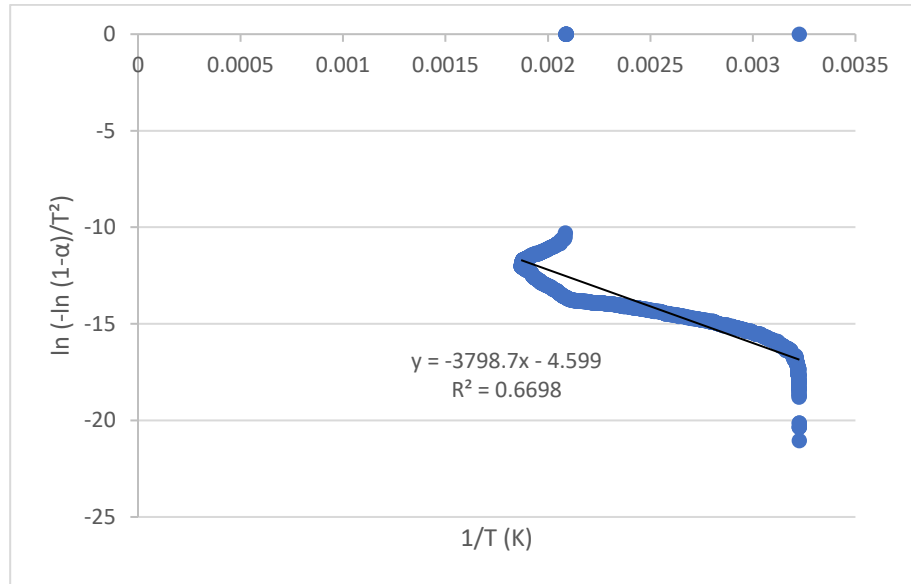


LAMPIRAN B

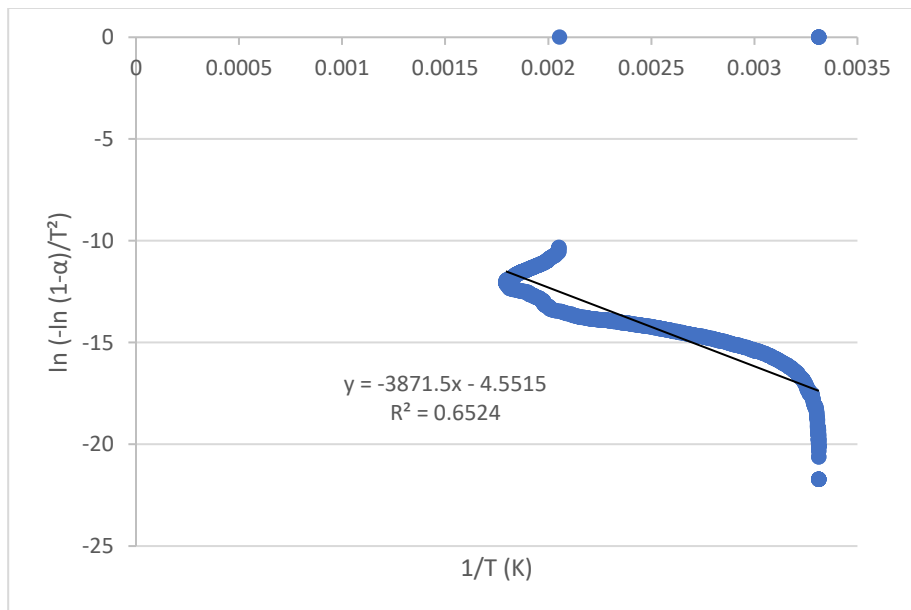
Grafik Energi Aktivasi Biobriket Ampas Tebu (*Bagasse*)

1. Tekanan Pembriketan 50 kg/cm²

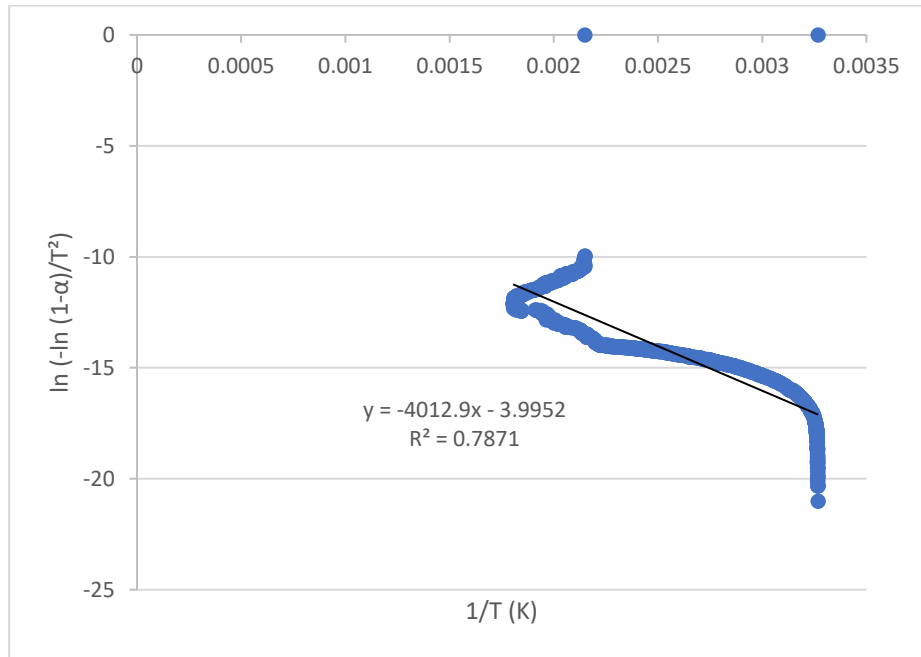
a. Pengujian 1



b. Pengujian 2

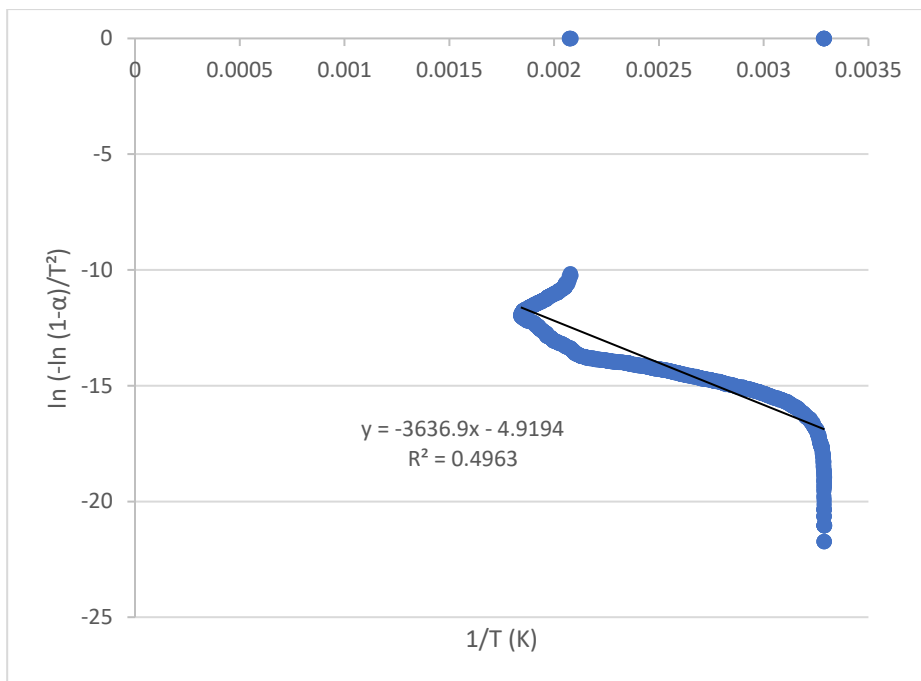


c. Pengujian 3

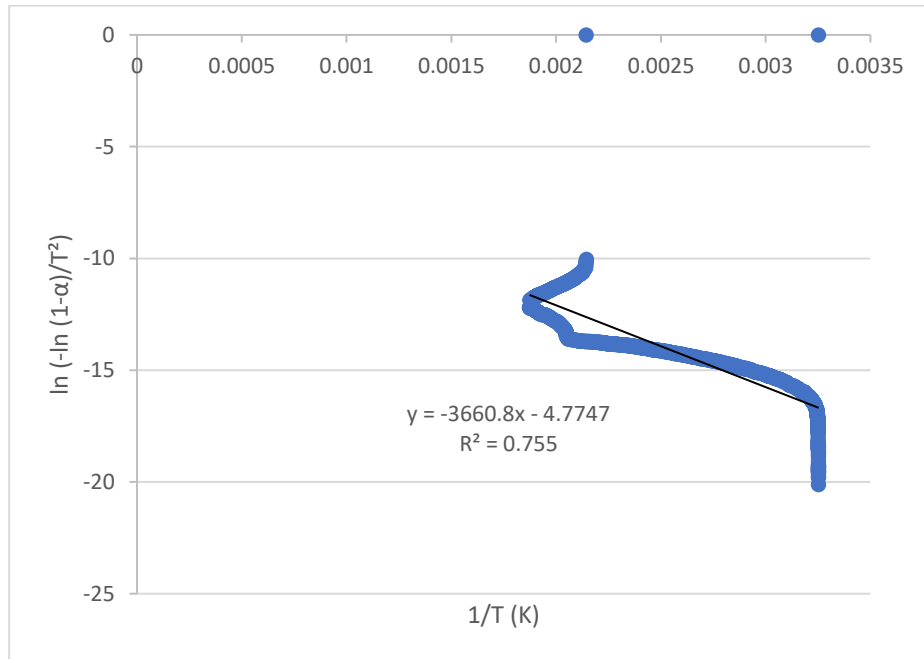


2. Tekanan Pembriketan 100 kg/cm²

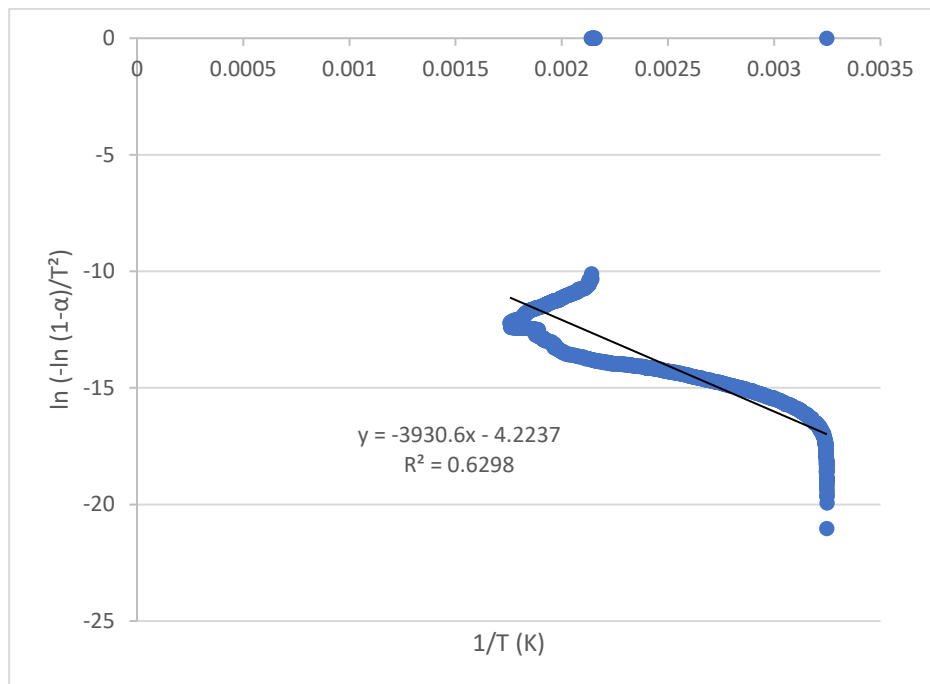
a. Pengujian 1



b. Pengujian 2

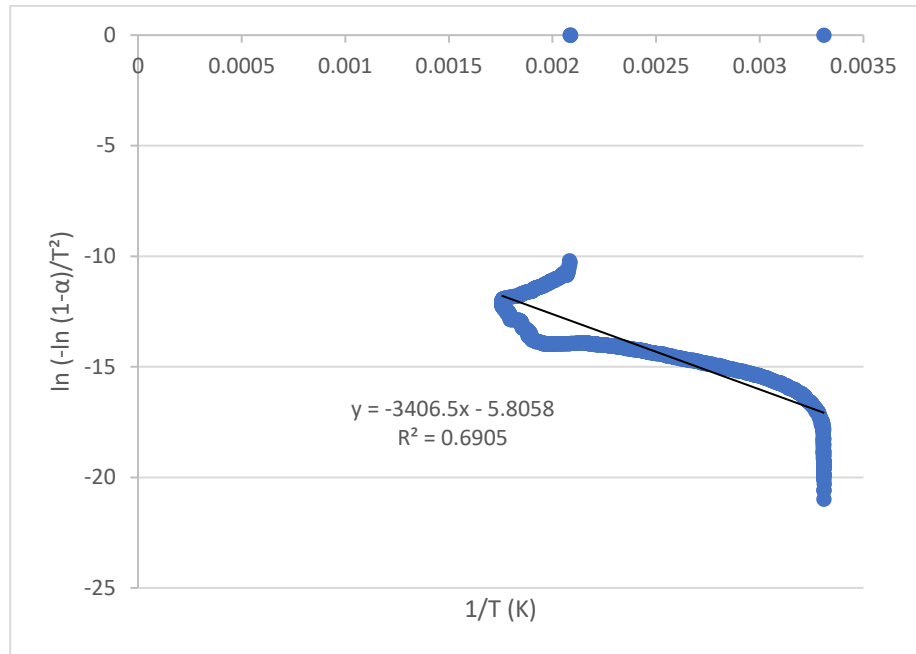


c. Pengujian 3

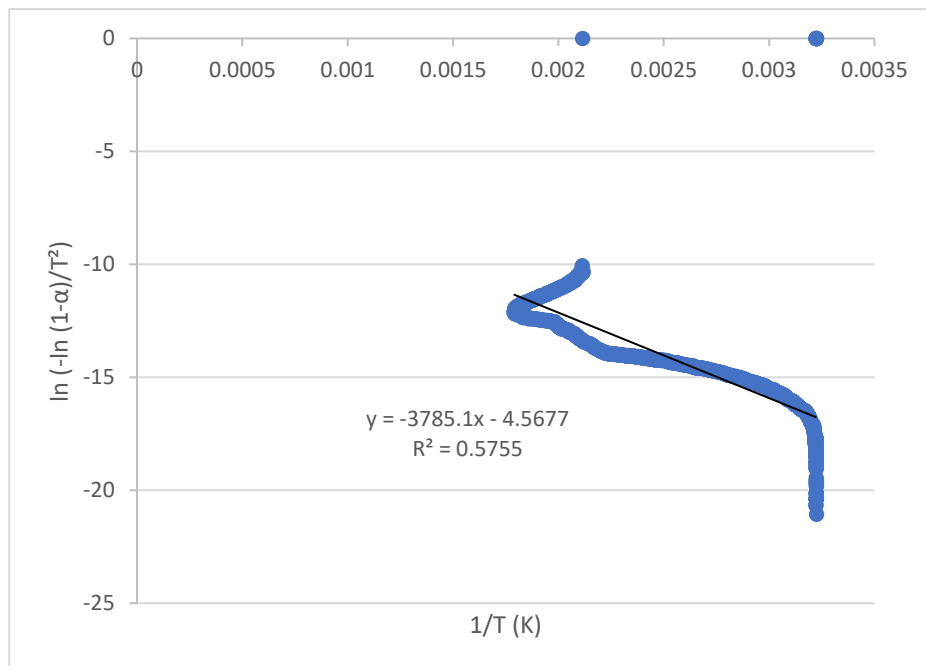


3. Tekanan Pembriketan 150 kg/cm²

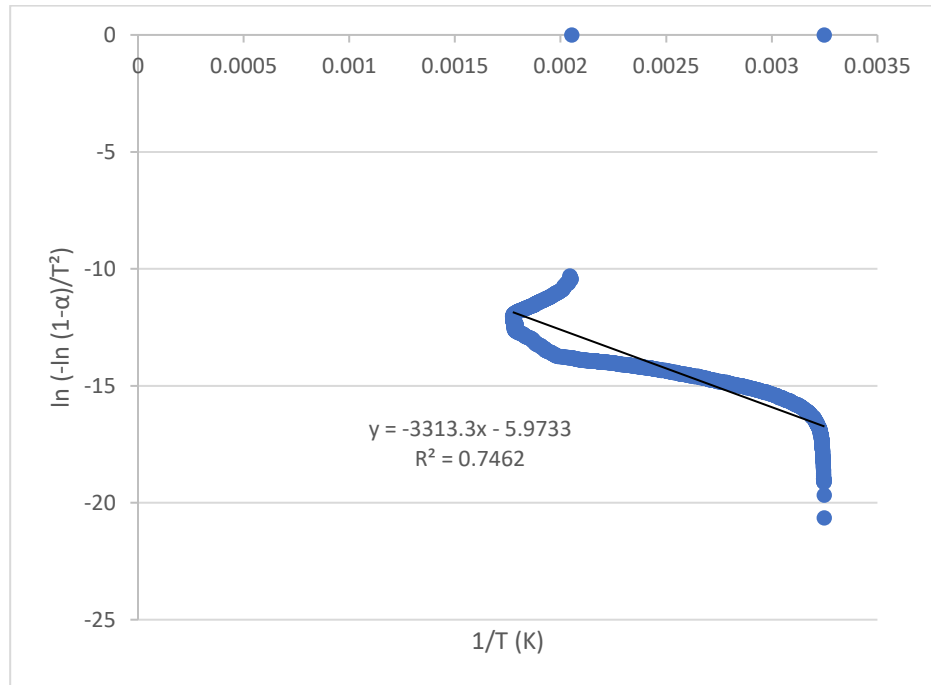
a. Pengujian 1



b. Pengujian 2



c. Pengujian 3



LEMBAR PENGUJIAN



Nama	Fityanul dan Rifqi
Instansi	UMY

**LABORATORIUM KONVERSI KIMIA
BIOMATERIALDEPARTEMEN TEKNOLOGI HASIL HUTAN
FAKULTAS KEHUTANAN UGM
2017**



HASIL ANALISIS LABORATORIUM

Nama : Fityanul
Instansi : UMY
Nama Sampel : Briket Ampas Tebu dengan tekanan 50 kg/cm², 100 kg/cm²,
150kg/cm²

Hasil Pengujian (bagian 1) :

Kadar Air

No	Sampel	%KA
1	50 kg/cm ² (1)	15,86
2	50 kg/cm ² (2)	15,82
3	100 kg/cm ² (1)	15,12
4	100 kg/cm ² (2)	15,39
5	150 kg/cm ² (1)	13,85
6	150 kg/cm ² (2)	14,81

Kadar Volatil

No	Sampel	% Zat Volatil
1	50 kg/cm ² (1)	68,77
2	50 kg/cm ² (2)	69,54
3	100 kg/cm ² (1)	68,47
4	100 kg/cm ² (2)	69,80
5	150 kg/cm ² (1)	67,97
6	150 kg/cm ² (2)	69,93

Kadar Abu

No	Sampel	% Kadar Abu
1	50 kg/cm ² (1)	4,15
2	50 kg/cm ² (2)	6,64
3	100 kg/cm ² (1)	7,04
4	100 kg/cm ² (2)	6,75
5	150 kg/cm ² (1)	10,22
6	150 kg/cm ² (2)	11,51

Kadar Karbon Terikat

No	Sampel	%Karbon Terikat
1	50 kg/cm ² (1)	11,22
2	50 kg/cm ² (2)	7,99
3	100 kg/cm ² (1)	9,37
4	100 kg/cm ² (2)	8,06
5	150 kg/cm ² (1)	7,95
6	150 kg/cm ² (2)	3,75

(halaman selanjutnya...)



FAKULTAS KEHUTANAN UNIVERSITAS GADJAH MADA
DEPARTEMEN TEKNOLOGI HASIL HUTAN
LABORATORIUM KONVERSI KIMIA BIOMATERIAL

Yogyakarta, 6 Agustus 2017

(halaman lanjutan...)

Nama : Rifqi
Instansi : UMY
Nama Sampel : Briket Ampas Tebu dengan tekanan 200 kg/cm², 250kg/cm²,
300kg/cm²

Hasil Pengujian (bagian 2) :

Kadar Air

Kadar Volatil

Kadar Abu

No	Sampel	% KA
1	200 kg/cm ² (1)	13,08
2	200 kg/cm ² (2)	13,29
3	250 kg/cm ² (1)	13,08
4	250 kg/cm ² (2)	11,23
5	300 kg/cm ² (1)	11,58
6	300 kg/cm ² (2)	11,78

No	Sampel	% Zat Volatil
1	200 kg/cm ² (1)	67,15
2	200 kg/cm ² (2)	67,07
3	250 kg/cm ² (1)	66,56
4	250 kg/cm ² (2)	68,40
5	300 kg/cm ² (1)	67,22
6	300 kg/cm ² (2)	67,92

No	Sampel	% Kadar Abu
1	200 kg/cm ² (1)	6,35
2	200 kg/cm ² (2)	6,64
3	250 kg/cm ² (1)	8,11
4	250 kg/cm ² (2)	6,53
5	300 kg/cm ² (1)	9,18
6	300 kg/cm ² (2)	9,13

Kadar Karbon Terikat

No	Sampel	% Karbon Terikat
1	200 kg/cm ² (1)	13,42
2	200 kg/cm ² (2)	12,99
3	250 kg/cm ² (1)	12,26
4	250 kg/cm ² (2)	13,83
5	300 kg/cm ² (1)	12,01
6	300 kg/cm ² (2)	11,17

Mengetahui

A.n Dekan

Wakil Dekan Bidang Penelitian,

Pengabdian Kepada Masyarakat dan Kerjasama



Dr. rer. sily. Muhammad Ali Imron, S.Hut., M. Sc.

NIP : 197607112002121003

Ketua Laboratorium Konversi
Kimia Biomaterial

Dr. Joko Sulistyono, S.Hut. M.Sc.

NIP : 19701118 199903 1 001



Yogyakarta, 6 Agustus 2017

Data Pengujian Kadar air :

No	Sampel	Berat Sampel (g)	Berat sampel kering tanur (g)	% KA
1	50 kg/cm ² (1)	2,043	1,719	15,86
2	50 kg/cm ² (2)	2,016	1,697	15,82
3	100 kg/cm ² (1)	2,017	1,712	15,12
4	100 kg/cm ² (2)	2,040	1,726	15,39
5	150 kg/cm ² (1)	2,014	1,735	13,85
6	150 kg/cm ² (2)	2,012	1,714	14,81

Data Pengujian Kadar Zat Mudah Menguap (Zat Volatil):

No	Sampel	Berat Sampel (g)	Berat sampel kering tanur (g)	% Kehilangan berat	% KA	% Zat Volatil
1	50 kg/cm ² (1)	2,043	0,314	84,63	15,86	68,77
2	50 kg/cm ² (2)	2,016	0,295	85,37	15,82	69,54
3	100 kg/cm ² (1)	2,017	0,331	83,59	15,12	68,47
4	100 kg/cm ² (2)	2,040	0,302	85,20	15,39	69,80
5	150 kg/cm ² (1)	2,014	0,366	81,83	13,85	67,97
6	150 kg/cm ² (2)	2,012	0,307	84,74	14,81	69,93



Data Pengujian Kadar Abu :

No	Sampel	Berat Sampel (g)	Berat sisa sampel (g)	% Kadar Abu
1	50 kg/cm ² (1)	3,003	1,737	4,15
2	50 kg/cm ² (2)	3,003	1,747	6,64
3	100 kg/cm ² (1)	3,004	1,733	7,04
4	100 kg/cm ² (2)	3,005	1,734	6,75
5	150 kg/cm ² (1)	3,004	1,722	10,22
6	150 kg/cm ² (2)	3,004	1,729	11,51

Data Pengujian Kadar Karbon Terikat:

No	Sampel	% KA Briket	% Kadar Abu	%zat volatil	% Karbon terikat
1	50 kg/cm ² (1)	15,86	4,15	68,77	11,22
2	50 kg/cm ² (2)	15,82	6,64	69,54	7,99
3	100 kg/cm ² (1)	15,12	7,04	68,47	9,37
4	100 kg/cm ² (2)	15,39	6,75	69,80	8,06
5	150 kg/cm ² (1)	13,85	10,22	67,97	7,95
6	150 kg/cm ² (2)	14,81	11,51	69,93	3,75



Data Pengujian Kadar air :

No	Sampel	Berat Sampel (g)	Berat sampel kering tanur (g)	% KA
1	200 kg/cm ² (1)	3,020	2,625	13,08
2	200 kg/cm ² (2)	3,039	2,635	13,29
3	250 kg/cm ² (1)	3,074	2,672	13,08
4	250 kg/cm ² (2)	3,018	2,679	11,23
5	300 kg/cm ² (1)	2,962	2,619	11,58
6	300 kg/cm ² (2)	2,955	2,607	11,78

Data Pengujian Kadar Zat Mudah Menguap (Zat Volatil):

No	Sampel	Berat Sampel (g)	Berat sampel kering tanur (g)	% Kehilangan berat	% KA	% Zat Volatil
1	200 kg/cm ² (1)	3,020	0,597	80,23	13,08	67,15
2	200 kg/cm ² (2)	3,056	0,600	80,37	13,29	67,07
3	250 kg/cm ² (1)	3,074	0,626	79,64	13,08	66,56
4	250 kg/cm ² (2)	3,084	0,628	79,64	11,23	68,40
5	300 kg/cm ² (1)	3,043	0,645	78,80	11,58	67,22
6	300 kg/cm ² (2)	2,955	0,600	79,70	11,78	67,92



Yogyakarta, 6 Agustus 2017

Data Pengujian Kadar Abu :

No	Sampel	Berat Sampel (g)	Berat sisa sampel (g)	% Kadar Abu
1	200 kg/cm ² (1)	2,662	20,841	6,35
2	200 kg/cm ² (2)	2,619	22,842	6,64
3	250 kg/cm ² (1)	2,676	25,632	8,11
4	250 kg/cm ² (2)	2,679	25,750	6,53
5	300 kg/cm ² (1)	2,635	21,941	9,18
6	300 kg/cm ² (2)	2,705	21,132	9,13

Data Pengujian Kadar Karbon Terikat:

No	Sampel	% KA Briket	% Kadar Abu	% zat volatil	% Karbon terikat
1	200 kg/cm ² (1)	13,08	6,35	67,15	13,42
2	200 kg/cm ² (2)	13,29	6,64	67,07	12,99
3	250 kg/cm ² (1)	13,08	8,11	66,56	12,26
4	250 kg/cm ² (2)	11,23	6,53	68,40	13,83
5	300 kg/cm ² (1)	11,58	9,18	67,22	12,01
6	300 kg/cm ² (2)	11,78	9,13	67,92	11,17



FAKULTAS KEHUTANAN UNIVERSITAS GADJAH MADA
DEPARTEMEN TEKNOLOGI HASIL HUTAN
LABORATORIUM KONVERSI KIMIA BIOMATERIAL

Yogyakarta, 6 Agustus 2017

Parameter Uji

No	Kegiatan	Jumlah
1	Kadar Air	12
2	Kadar Abu	12
3	Kadar Volatil (Zat Mudah Menguap)	12
TOTAL		36 Sampel

A. Agenda Kegiatan

No	Tanggal	Mulai	Selesai	Kegiatan	Total Jam
1	14 Juli 2017	10.00	13.00	Pembuatan sampel KA, Abu, volatil	3 jam
2	15 Juli 2017	14.00	15.00	Pengukuran sampel kadar air	1 jam
3	16 Juli 2017	14.00	15.00	Pengukuran sampel kadar air	1 jam
4	24 Juli 2017	10.00	16.00	Pengujian Kadar Abu	6 jam
5	25 Juli 2017	10.00	13.00	Pengujian Volatil	3 jam
6	31 Juli 2017	10.00	12.00	Input data	2 jam
Total					16 jam

B. Biaya Pengujian

1. Penerimaan Biaya penelitian

No	Parameter uji	Tarif	Jumlah sampel	Total
1.	Karbon terikat (KA-Abu-Volatil)	Rp50.000	12	Rp600.000
2.	<i>Fee laboratorium</i>	Rp200.000		Rp200.000
3.				
Total				Rp800.000

C. Pengeluaran untuk keperluan tenaga penguji :

Keperluan tenaga pengujian = (43 jam/8jam/hari) x Rp. 45.000/hari = **Rp. 90.000**

Mengetahui

Ketua Laboratorium Konversi
Kimia Biomaterial

Dr. Joko Sulistyono, S.Hut. M.Sc.
NIP : 19701118 199903 1 001

Tenaga Penguji

Naresvara Nircela Pradipta