DAFTAR PUSTAKA

Fauzi, Yan dkk. 2012. Kelapa Sawit. Jakarta. Penebar Swadaya.

Harling, Vina N Van. Pengaruh Variasi Campuran Bahan Bakar Solar Dan Minyak Kelapa Sawit Terhadap Putaran Motor Diesel Tipe Rino 115PS. SOSCIED Vol. 2 No. 1 Juli 2019. ISSN: 2622-8866

Hasibuan, H.A., Rahmadi, H.Y., & Faizah, R. (2014). Teknik sampling yang representatif dan akurat dalam penentuan kadar minyak dan inti pada tandan buah sawit segar. Warta Pusat Pen. Kelapa Sawit Indones., 19(2), 49–55.

Hermansyah, Heri dkk. 2010. Model Kinetika Sederhana Untuk Reaksi Hidrolisis Minyak Zaitun Menggunakan Lipase. Departemen Teknik Kimia, Fakultas Teknik Universitas Indonesia, Kampus UI Depok, Depok.

Lukito, Pryo Adi dan Sudrajat. 2017. Pengaruh Kerusakan Buah Kelapa Sawit terhadap Kandungan *Free Fatty Acid* dan Rendemen CPO di Kebun Talisayan 1 Berau. Bul. Agrohorti 5 (1): 37 –44 (2017).

Maulidna, Marwani, Tri. 2019. Perhitungan Perolehan *Crude Palm Oil* (CPO) Pada Proses Pemurnian di Stasiun Klarifikasi Pabrik Kelapa Sawit (PKS) PTPN II Pagar Merbau. ISSN: 2686-6641

Mangoensoekarjo, S. 2003. *Management* Agrobisnis Kelapa Sawit. Gadjah Mada University Press. Yogyakarta.

Murgianto, Fitra, dkk. 2021. Potensi Kandungan Minyak Kelapa Sawit dengan Berbagai Tingkat Berondolan Lepas di Piringan. J. Agro Ind. Perkeb. Volume 9 No. 2 | Oktober 2021: 91-98

Pahan. 2006. Panduan Lengkap Kelapa Sawit Manajemen Agribisnis Dari Hulu Hingga Hilir. Jakarta: Penebar Swadaya.

Purwanto, Imdad Julian dan Edi Santosa. Hubungan Mutu Buah dan Curah Hujan Terhadap Kandungan Asam Lemak Bebas pada Minyak Kelapa Sawit. Bul. Agrohorti 4(3): 250-255 (2016)

Rahmadhania, Feny, dkk. Pengaruh Kematangan Buah Kelapa Sawit Varietas DXP Bah Lias Terhadap Kadar Minyak Sawit Mentah (CPO). Jurnal Agro Estate.

Rangkuti, I. (2018). Rendemen dan komponen minyak sawit mentah berdasarkan tingkat kematangan buah pada elevasi tinggi. Agrotekma, 3(1), 10–16

Saragih, Hendra Maujana dan Hanna Rahayu. 2022. Pengaruh Kebijakan Uni Eropa Terhadap Ekspor Kelapa Sawit Indonesia. JPPI. Vol. 8, No. 2, 2022, pp. 296-303

Tim Penulis, PS. 1997. Kelapa Sawit Usaha Budidaya dan Pemanfaatan Hasil dan Aspek Pemasaran. Cetakan Pertama. Penerbit Swadaya Jakarta.

Yunifa, Nina. 2010. Analisa Mutu Crude Palm Oil (CPO) Dengan Parameter Kadar Asam Lemak Bebas (ALB), Kadar Air Dan Kadar Zat Pengotor Di Pabrik Kelapa Sawit PT. Perkebunan Nusantara-V Tandun Kabupaten Kampar. Jurnal Teknik Kimia Vol.7, No.1, September 2010

LAMPIRAN

Lampiran 1

Dokumentasi Kadar FFA

Fraksi 0

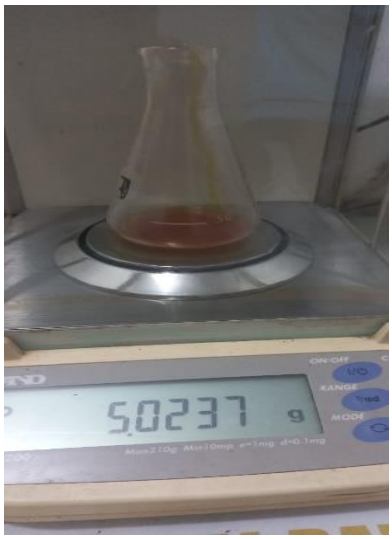
Fraksi 1

Fraksi 2

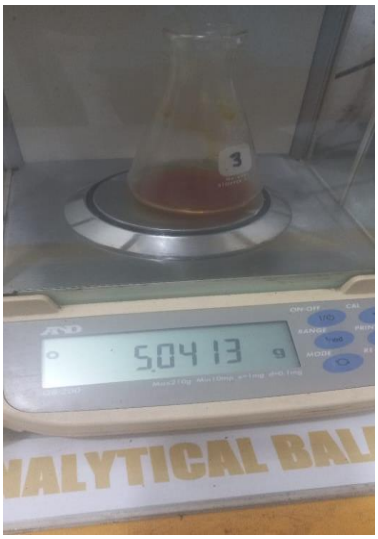
Fraksi 3

Fraksi 4

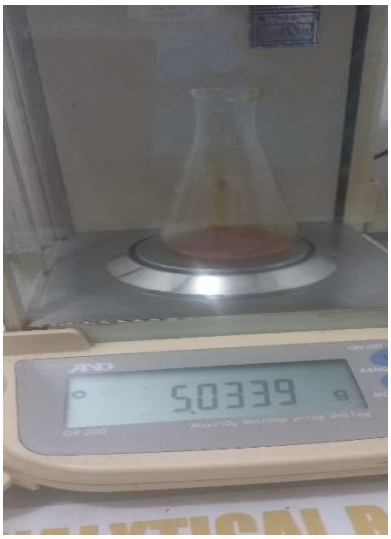
Fraksi 5



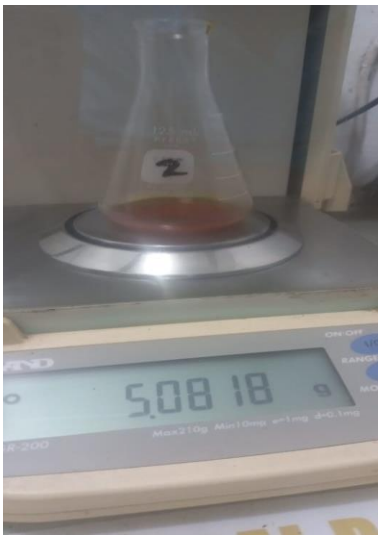
Timbangan Sampel Fraksi 0



Timbangan Sampel Fraksi 11

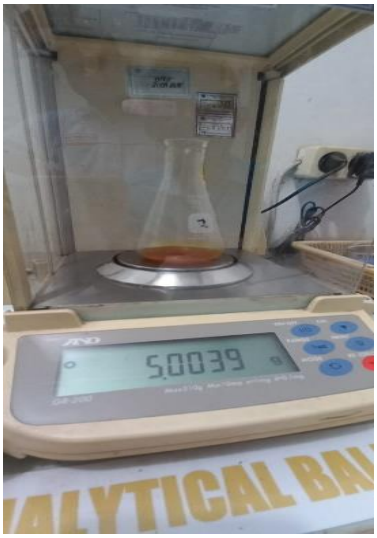


Timbangan Sampel Fraksi 2



Timbangan Sampel Fraksi 3

Timbangan Sampel Fraksi 4



Timbangan Sampel Fraksi 5

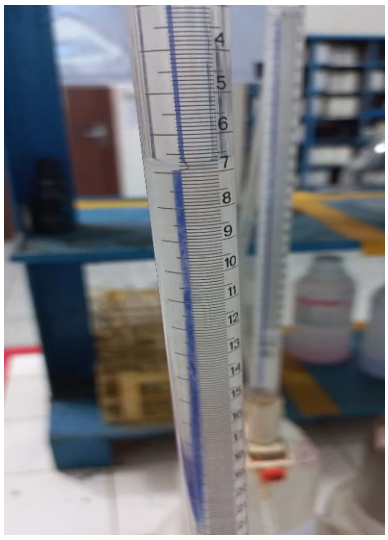
Penambahan Indikator PP

Penambahan Alkohol

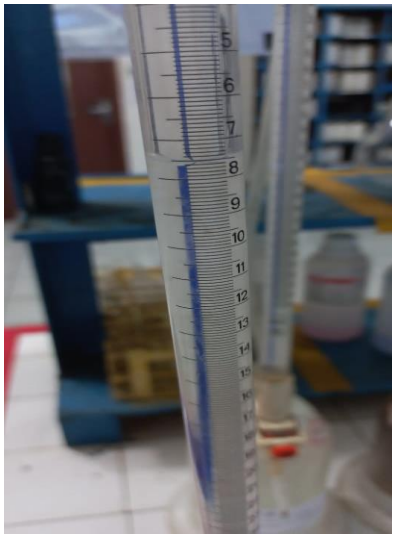
Buret Pengukur NaOH Pada Sampel Fraksi 0

Buret Pengukur NaOH Pada Sampel Fraksi 1

Buret Pengukur NaOH Pada Sampel Fraksi 2



Buret Pengukur NaOH Pada Sampel Fraksi 3



Buret Pengukur NaOH Pada Sampel Fraksi 4

Buret Pengukur NaOH Pada Sampel Fraksi 5

Lampiran 2

Dokumentasi Kandungan Minyak

1. Penimbangan TBS

Sampel Fraksi 0

Sampel Fraksi 1

Sampel Fraksi 2

Sampel Fraksi 3

Sampel Fraksi 4

Sampel Fraksi 5

2. Penimbangan Berondolan

Berondolan Fraksi 0

Berondolan Fraksi 1

Berondolan Fraksi 2

Berondolan Fraksi 3

Berondolan Fraksi 4

Berondolan Fraksi 5

2. Penimbangan *Mesocarp* Basah

***Mesocarp* Basah Fraksi 0**

***Mesocarp* Basah Fraksi 1**

***Mesocarp* Basah Fraksi 2**

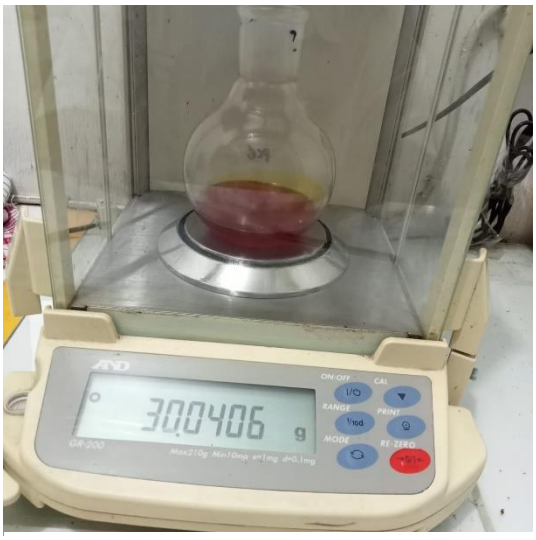
***Mesocarp* Basah Fraksi 3**

***Mesocarp* Basah Fraksi 4**

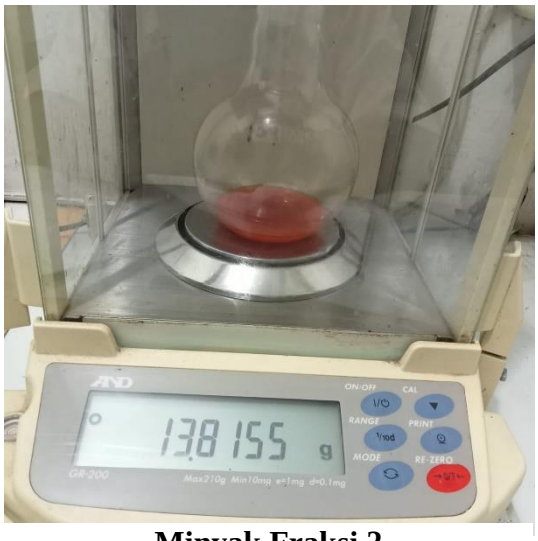
***Mesocarp* Basah Fraksi 5**

3. Penimbangan Minyak

Minyak Fraksi 0



Minyak Fraksi 1



Minyak Fraksi 2

Minyak Fraksi 3

Minyak Fraksi 4

Minyak Fraksi 5

4. Penimbangan *Mesocarp* Kering

Mesocarp Kering Fraksi 0

Mesocarp Kering Fraksi 1

Mesocarp Kering Fraksi 2

Mesocarp Kering Fraksi 3

Mesocarp Kering Fraksi 4

Mesocarp Kering Fraksi 5

Lampiran 3

PERHITUNGAN KADAR FFA DAN KANDUNGAN MINYAK

A. Kadar FFA

Kadar FFA fraksi 0

Berat Sampel	Volume Titrasi (NaOH)	Kadar FFA
5,0237gram	4,5 ml	2,2908%
5,0741gram	4,8 ml	2,4193%
5,0324gram	4,6 ml	2,3377%
Kadar rata-rata FFA		2,349%

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 4{,}5 \times 0{,}0999}{5{,}0237}$$

$$= \frac{11{,}51}{5{,}0237}$$

$$= 2{,}2908\ \%$$

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 4{,}8 \times 0{,}0999}{5{,}0741}$$

$$= \frac{12{,}28}{5{,}0741}$$

$$= 2{,}4193\ \%$$

$$\%\text{FFA} = \frac{25{,}6\ \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 4{,}6 \times 0{,}0999}{5{,}0324}$$

$$= \frac{11{,}76}{5{,}0324}$$

= 2,3377 %

Kadar FFA fraksi 1

Berat Sampel	Volume Titrasi (NaOH)	Kadar FFA
5,0413gram	5,4 ml	2,7394%
5,0456gram	5,1 ml	2,5850%
5,0319gram	5,3 ml	2,6937%
Kadar rata-rata FFA		2.672%

$$\%\text{FFA} = \frac{25{,}6\ \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 5{,}4 \times 0{,}0999}{5{,}0413}$$

$$= \frac{13{,}81}{5{,}0413}$$

= 2,7394 %

$$\%\text{FFA} = \frac{25{,}6\ \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 5{,}1 \times 0{,}0999}{5{,}0456}$$

$$= \frac{13{,}04}{5{,}0456}$$

= 2,5850 %

$$\%\text{FFA} = \frac{25{,}6\ \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 5{,}3 \times 0{,}0999}{5{,}0319}$$

$$= \frac{13{,}55}{5{,}0319}$$

$$= 2{,}6937\ \%$$

Kadar FFA fraksi 2

Berat Sampel	Volume Titrasi (NaOH)	Kadar FFA
5,0339gram	5.9 ml	2,9975%
5,0541gram	6,3 ml	3,1879%
5,0256gram	6,1 ml	3,1041%
Kadar rata-rata FFA		3,097%

$$\%\text{FFA} = \frac{25{,}6\ \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 5{,}9 \times 0{,}0999}{5{,}0339}$$

$$= \frac{15{,}08}{5{,}0339}$$

$$= 2{,}9975\ \%$$

$$\%\text{FFA} = \frac{25{,}6\ \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 6{,}3 \times 0{,}0999}{5{,}0541}$$

$$= \frac{16{,}11}{5{,}0541}$$

$$= 3{,}1879\ \%$$

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 6{,}1 \times 0{,}0999}{5{,}0256}$$

$$= \frac{15{,}60}{5{,}0256}$$

= 3,1041 %

Kadar FFA fraksi 3

Berat Sampel	Volume Titrasi (NaOH)	Kadar FFA
5,0818gram	6,8 ml	3,4221%
5,0417gram	6,5 ml	3,2972%
5,0367gram	6,4 ml	3,2497%
Kadar rata-rata FFA		3,323%

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 6{,}8 \times 0{,}0999}{5{,}0818}$$

$$= \frac{17{,}39}{5{,}0818}$$

= 3,4221 %

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 6{,}5 \times 0{,}0999}{5{,}0417}$$

$$= \frac{16{,}62}{5{,}0417}$$

= 3,2972 %

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 6{,}4 \times 0{,}0999}{5{,}0367}$$

$$= \frac{16{,}37}{5{,}0367}$$

$$= 3{,}2497\ \%$$

Kadar FFA fraksi 4

Berat Sampel	Volume Titrasi (NaOH)	Kadar FFA
5,0039gram	7,5 ml	3,8332%
5,0394gram	8,2 ml	4,1614%
5,0201gram	7,9 ml	4,0246%
Kadar rata-rata FFA		4,006%

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 7{,}5 \times 0{,}0999}{5{,}0039}$$

$$= \frac{19{,}18}{5{,}0039}$$

$$= 3{,}8332\ \%$$

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 8{,}2 \times 0{,}0999}{5{,}0394}$$

$$= \frac{20{,}97}{5{,}0394}$$

$$= 4{,}1614\ \%$$

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 7{,}9 \times 0{,}0999}{5{,}0201}$$

$$= \frac{20{,}20}{5{,}0201}$$

= 4,0246 %

Kadar FFA fraksi 5

Berat Sampel	Volume Titrasi (NaOH)	Kadar FFA
5,0174gram	7,8 ml	3,9865%
5,0062gram	7,9 ml	4,0358%
5,0152gram	8,1 ml	4,1304%
Kadar rata-rata FFA		4,051%

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 7{,}8 \times 0{,}0999}{5{,}0039}$$

$$= \frac{19{,}94}{5{,}0039}$$

= 3,9865 %

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 7{,}9 \times 0{,}0999}{5{,}0062}$$

$$= \frac{20{,}20}{5{,}0062}$$

= 4,0358 %

$$\%\text{FFA} = \frac{25{,}6 \times \text{ml NaOH} \times \text{NNaOH}}{\text{berat sampel}}$$

$$= \frac{25{,}6 \times 8{,}1 \times 0{,}0999}{5{,}0152}$$

$$= \frac{20{,}72}{5{,}0152}$$

= 4,1304 %

B. Kandungan Minyak

1. Fraksi 0

Data Sampel 1 Fraksi 0

Sampel 1		Satuan
TBS	6500	gram
Jankos	-	gram
Brondolan	3523	gram
Mesocarp Basah	3051	gram
Mesocarp Kering	1783	gram
Minyak	1410.5	gram
FB	54.2	%
WMF	86.6	%
DWMW	58.44	%
ODM	79.11	%

Data Sampel 2 Fraksi 0

Sampel 2		Satuan
TBS	6400	gram
Jankos	-	gram
Brondolan	3456	gram
Mesocarp Basah	3034	gram
Mesocarp Kering	1812	gram
Minyak	1416.4	gram
FB	54.0	%
WMF	87.8	%
DWMW	59.73	%
ODM	78.15	%

Data Sampel 3 Fraksi 0

Sampel 3		Satuan
TBS	8300	gram
Jankos	-	gram
Brondolan	4523.5	gram
Mesocarp Basah	3940	gram
Mesocarp Kering	2319	gram
Minyak	1791.1	gram
FB	54.5	%
WMF	87.1	%
DWMW	58.87	%
ODM	77.22	%

Kandungan minyak fraksi 0

No	FB (%)	WMF (%)	DMWM (%)	ODM (%)	OWM (%)	OB (%)
1	54,2	86,6	58,44	79,11	46,23	21,7
2	54,0	87,8	59,73	78,15	46,68	22,1
3	54,5	87,1	58,87	77,22	45,46	21,6
Rata-rata					46,17	21,8

$$\text{OB}\ (\%) = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{54{,}2 \times 86{,}6 \times 58{,}44 \times 79{,}11}{1000000}$$

$$= \frac{21699951{,}9}{1000000}$$

= 21,7 %

$$\text{OWM}\ (\%) = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{58{,}44 \times 79{,}11}{100}$$

$$= \frac{4623{,}18}{100}$$

= 46,23 %

$$\text{OB}\ (\%) = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{54 \times 87{,}8 \times 59{,}73 \times 78{,}15}{1000000}$$

$$= \frac{22131445{,}1}{1000000}$$

= 22,1 %

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{59{,}73 \times 78{,}15}{100}$$

$$= \frac{4667{,}89}{100}$$

$$= 46{,}68\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{54{,}5 \times 87{,}1 \times 58{,}87 \times 77{,}12}{1000000}$$

$$= \frac{21551411{,}23}{1000000}$$

$$= 21{,}6\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{58{,}87 \times 77{,}12}{100}$$

$$= \frac{4545{,}94}{100}$$

$$= 45{,}46\ \%$$

2. Fraksi 1

Data Sampel 1 Fraksi 1

Sampel 1		Satuan
TBS	7600	gram
Jankos	-	gram
Brondolan	4271.2	gram
Mesocarp Basah	3707	gram
Mesocarp Kering	2057	gram
Minyak	1681.8	gram
FB	56.2	%
WMF	86.8	%
DWMW	55.49	%
ODM	81.75	%

Data Sampel 2 Fraksi 1

Sampel 2		Satuan
TBS	9800	gram
Jankos	-	gram
Brondolan	5635	gram
Mesocarp Basah	4869	gram
Mesocarp Kering	2719	gram
Minyak	2246.1	gram
FB	57.5	%
WMF	86.4	%
DWMW	55.84	%
ODM	82.62	%

Data Sampel 3 Fraksi 1

Sampel 3		Satuan
TBS	12700	gram
Jankos	-	gram
Brondolan	7213.6	gram
Mesocarp Basah	6290	gram
Mesocarp Kering	3568	gram
Minyak	2975.9	gram
FB	56.8	%
WMF	87.2	%
DWMW	56.72	%
ODM	83.41	%

Kandungan minyak fraksi 1

No	FB (%)	WMF (%)	DMWM (%)	ODM (%)	OWM (%)	OB (%)
1	56,2	86,8	55,49	81,75	45,36	22,1
2	57,5	86,4	55,84	82,62	46,13	22,9
3	56,8	87,2	56,72	83,41	47,31	23,4
Rata-rata					46,27	22,8

$$\text{OB}\ (\%) = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{56{,}2 \times 86{,}8 \times 55{,}49 \times 81{,}75}{1000000}$$

$$= \frac{22128833{,}79}{1000000}$$

= 22,1 %

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{55{,}49 \times 81{,}75}{100}$$

$$= \frac{4536{,}31}{100}$$

$$= 45{,}36\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{57{,}5 \times 86{,}4 \times 55{,}49 \times 81{,}75}{1000000}$$

$$= \frac{22929871{,}97}{1000000}$$

$$= 22{,}9\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{55{,}49 \times 81{,}75}{100}$$

$$= \frac{4613{,}50}{100}$$

$$= 46{,}13\ \%$$

$$\text{OB}\ (\%) = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{56{,}8 \times 87{,}2 \times 56{,}72 \times 83{,}41}{1000000}$$

$$= \frac{23432529{,}05}{1000000}$$

= 23,4 %

$$\text{OWM}\ (\%) = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{56{,}72 \times 83{,}41}{100}$$

$$= \frac{4731{,}02}{100}$$

= 47,31 %

3. Fraksi 2

Data sampel 1 Fraksi 2

Sampel 1		Satuan
TBS	5500	gram
Jankos	-	gram
Brondolan	3146	gram
Mesocarp Basah	2753	gram
Mesocarp Kering	1619	gram
Minyak	1360	gram
FB	57.2	%
WMF	87.5	%
DWMW	58.83	%
ODM	83.98	%

Data Sampel 2 Fraksi 2

Sampel 2		Satuan
TBS	4900	gram
Jankos	-	gram
Brondolan	2822.4	gram
Mesocarp Basah	2478	gram
Mesocarp Kering	1431	gram
Minyak	1191.2	gram
FB	57.6	%
WMF	87.8	%
DWMW	57.74	%
ODM	83.25	%

Data Sampel 3 Fraksi 2

Sampel 2		Satuan
TBS	4700	gram
Jankos	-	gram
Brondolan	2664.9	gram
Mesocarp Basah	2324	gram
Mesocarp Kering	1340	gram
Minyak	1122.9	gram
FB	56.7	%
WMF	87.2	%
DWMW	57.65	%
ODM	83.82	%

Kandungan minyak fraksi 2

No	FB (%)	WMF (%)	DMWM (%)	ODM (%)	OWM (%)	OB (%)
1	57,2	87,5	58,83	83,98	49,41	24,7
2	57,6	87,8	57,74	83,25	48,07	24,3
3	56,7	87,2	57,65	83,82	48,32	23,9
Rata-rata					48,6	24,2

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{57{,}2 \times 87{,}5 \times 58{,}83 \times 83{,}98}{1000000}$$

$$= \frac{24727419{,}71}{1000000}$$

= 24,7 %

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{58{,}83 \times 83{,}98}{100}$$

$$= \frac{4940{,}54}{100}$$

= 49,41 %

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{57{,}6 \times 87{,}8 \times 57{,}74 \times 83{,}25}{1000000}$$

$$= \frac{24309611{,}65}{1000000}$$

= 24,3 %

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{57{,}74 \times 83{,}25}{100}$$

$$= \frac{4806{,}86}{100}$$

$$= 48{,}07\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{56{,}7 \times 87{,}2 \times 57{,}65 \times 83{,}82}{1000000}$$

$$= \frac{23891670{,}2}{1000000}$$

$$= 23{,}9\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{57{,}65 \times 83{,}82}{100}$$

$$= \frac{4832{,}22}{100}$$

$$= 48{,}32\ \%$$

4. Fraksi 3

Data Sampel 1 Fraksi 3

Sampel 2		Satuan
TBS	3800	gram
Jankos	-	gram
Brondolan	2090	gram
Mesocarp Basah	1804	gram
Mesocarp Kering	1060	gram
Minyak	884.8	gram
FB	55.0	%
WMF	86.3	%
DWMW	58.77	%
ODM	83.47	%

Data Sampel 2 Fraksi 3

Sampel 2		Satuan
TBS	6000	gram
Jankos	-	gram
Brondolan	3396	gram
Mesocarp Basah	2955	gram
Mesocarp Kering	1701	gram
Minyak	1409.1	gram
FB	56.6	%
WMF	87	%
DWMW	57.58	%
ODM	82.83	%

Data Sampel 3 Fraksi 3

Sampel 3		Satuan
TBS	3100	gram
Jankos	-	gram
Brondolan	1739.1	gram
Mesocarp Basah	1508	gram
Mesocarp Kering	866	gram
Minyak	719.7	gram
FB	56.1	%
WMF	86.7	%
DWMW	57.42	%
ODM	83.13	%

Kandungan minyak fraksi 3

No	FB (%)	WMF (%)	DMWM (%)	ODM (%)	OWM (%)	OB (%)
1	55,0	86,3	58,77	83,47	49,06	23,3
2	56,6	87,0	57,58	82,83	47,69	23,5
3	56,1	86,7	57,42	83,13	47,73	23,2
Rata-rata					48,16	23,3

$$\text{OB}\ (\%) = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{55 \times 86{,}3 \times 58{,}77 \times 83{,}47}{1000000}$$

$$= \frac{23284107{,}2}{1000000}$$

= 23,3 %

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{58{,}77 \times 83{,}47}{100}$$

$$= \frac{4905{,}53}{100}$$

$$= 49{,}06\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{56{,}6 \times 87 \times 57{,}58 \times 82{,}83}{1000000}$$

$$= \frac{23485240{,}2}{1000000}$$

$$= 23{,}5\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{57{,}58 \times 82{,}83}{100}$$

$$= \frac{4769{,}35}{100}$$

$$= 47{,}69\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{56{,}1 \times 86{,}7 \times 57{,}42 \times 83{,}13}{1000000}$$

$$= \frac{23216830{,}3}{1000000}$$

$$= 23{,}2\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{57{,}42 \times 83{,}13}{100}$$

$$= \frac{4773{,}32}{100}$$

$$= 47{,}73\ \%$$

5. Fraksi 4

Data Sampel 1 Fraksi 4

Sampel 1		Satuan
TBS	2600	gram
Jankos	-	gram
Brondolan	1422.2	gram
Mesocarp Basah	1240	gram
Mesocarp Kering	717	gram
Minyak	591.9	gram
FB	54.7	%
WMF	87.2	%
DWMW	57.84	%
ODM	82.51	%

Data Sampel 2 Fraksi 4

Sampel 2		Satuan
TBS	2100	gram
Jankos	-	gram
Brondolan	1157.1	gram
Mesocarp Basah	1001	gram
Mesocarp Kering	569	gram
Minyak	474.2	gram
FB	55.1	%
WMF	86.5	%
DWMW	56.85	%
ODM	83.33	%

Data Sampel 3 Fraksi 4

Sampel 3		Satuan
TBS	1900	gram
Jankos	-	gram
Brondolan	1062.1	gram
Mesocarp Basah	915	gram
Mesocarp Kering	516	gram
Minyak	427.2	gram
FB	55.9	%
WMF	86.12	%
DWMW	56.42	%
ODM	82.78	%

Kandungan minyak fraksi 4

No	FB (%)	WMF (%)	DMWM (%)	ODM (%)	OWM (%)	OB (%)
1	54,7	87,2	57,84	82,51	47,72	22,8
2	55,1	86,5	56,85	83,33	47,37	22,6
3	55,9	86,1	56,42	82,78	46,71	22,5
Rata-rata					47,27	22,6

$$\text{OB}\ (\%) = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{54{,}7 \times 87{,}2 \times 57{,}84 \times 82{,}51}{1000000}$$

$$= \frac{22763481{,}4}{1000000}$$

= 22,8 %

$$\text{OWM}\ (\%) = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{57{,}84 \times 82{,}51}{100}$$

$$= \frac{4772{,}38}{100}$$

= 47,72 %

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{55{,}1 \times 86{,}5 \times 56{,}85 \times 83{,}33}{1000000}$$

$$= \frac{22578732{,}4}{1000000}$$

$$= 22{,}6\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{56{,}85 \times 83{,}33}{100}$$

$$= \frac{4737{,}31}{100}$$

$$= 47{,}37\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{55{,}9 \times 86{,}1 \times 56{,}42 \times 82{,}78}{1000000}$$

$$= \frac{22478817{,}6}{1000000}$$

$$= 22{,}5\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{56{,}42 \times 82{,}78}{100}$$

$$= \frac{4670{,}45}{100}$$

$$= 46{,}71\ \%$$

6. Fraksi 5

Data Sampel 1 Fraksi 5

Sampel 1		Satuan
TBS	1800	gram
Jankos	-	gram
Brondolan	982.8	gram
Mesocarp Basah	839	gram
Mesocarp Kering	471	gram
Minyak	388.4	gram
FB	54.6	%
WMF	85.4	%
DWMW	56.14	%
ODM	82.43	%

Data Sampel 2 Fraksi 5

Sampel 2		Satuan
TBS	2200	gram
Jankos	-	gram
Brondolan	1183.6	gram
Mesocarp Basah	1003	gram
Mesocarp Kering	564	gram
Minyak	461.9	gram
FB	53.8	%
WMF	84.7	%
DWMW	56.29	%
ODM	81.86	%

Data Sampel 3 Fraksi 5

Sampel 3		Satuan
TBS	3000	gram
Jankos	-	gram
Brondolan	1626	gram
Mesocarp Basah	1371	gram
Mesocarp Kering	765	gram
Minyak	628.3	gram
FB	54.2	%
WMF	84.3	%
DWMW	55.78	%
ODM	82.18	%

Kandungan minyak fraksi 5

No	FB (%)	WMF (%)	DMWM (%)	ODM (%)	OWM (%)	OB (%)
1	54,6	85,4	56,14	82,43	46,28	21,6
2	53,8	84,7	56,29	81,86	46,08	21
3	54,2	84,3	55,78	82,18	45,84	20,9
Rata-rata					46,07	21,2

$$\text{OB}\ (\%) = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{54{,}6 \times 85{,}4 \times 56{,}14 \times 82{,}43}{1000000}$$

$$= \frac{21577852{,}6}{1000000}$$

= 21,6 %

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{56{,}14 \times 82{,}43}{100}$$

$$= \frac{4627{,}62}{100}$$

$$= 46{,}28\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{53{,}8 \times 84{,}7 \times 56{,}29 \times 81{,}86}{1000000}$$

$$= \frac{20997552{,}5}{1000000}$$

$$= 21\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{56{,}29 \times 81{,}86}{100}$$

$$= \frac{4607{,}89}{100}$$

$$= 46{,}08\ \%$$

$$\text{OB (\%)} = \frac{\text{FB} \times \text{WMF} \times \text{DMWM} \times \text{ODM}}{1000000}$$

$$= \frac{54{,}2 \times 84{,}3 \times 55{,}78 \times 82{,}18}{1000000}$$

$$= \frac{20944572{,}9}{1000000}$$

$$= 20{,}9\ \%$$

$$\text{OWM (\%)} = \frac{\text{DMWM} \times \text{ODM}}{100}$$

$$= \frac{55{,}78 \times 82{,}18}{100}$$

$$= \frac{4584{,}0}{100}$$

$$= 45{,}84\ \%$$