08 ASL-2C

by UPNV Jatim

General metrics

20,945	3,480	246	13 min 55 sec	26 min 46 sec
characters	words	sentences	reading time	speaking time

Score

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Writing Issues

331	197	134
Issues left	Critical	Advanced

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Writing Issues

245	**Correctness**	
6	Unknown words	
22	Misspelled words	
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3	Closing punctuation	
30	Punctuation in compound/complex sentences	
81	Improper formatting	
3	Incomplete sentences	
38	Determiner use (a/an/the/this, etc.)	
1	Misplaced words or phrases	
5	Incorrect noun number	
4	Comma misuse within clauses	
3	Incorrect verb forms	
2	Commonly confused words	
2	Pronoun use	
1	Incorrect phrasing	
2	Faulty subject-verb agreement	
33	Confused words	
23	**Engagement**	
23	Word choice	
61	**Clarity**	
46	Passive voice misuse	
9	Intricate text	
4	Hard-to-read text	

2 Wordy sentences

2 **Delivery**

1 Weak or uncertain language

1 Inappropriate colloquialisms

Unique Words

Measures vocabulary diversity by calculating the percentage of words used only once in your document

20%

unique words

Rare Words

Measures depth of vocabulary by identifying words that are not among the 5,000 most common English words.

33%

rare words

Word Length

Measures average word length

4.4

characters per word

Sentence Length

Measures average sentence length

14.1

words per sentence

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The Effect of Heating Temperature at the Bleaching Process of Palm Oil to the Color's Absorption of Activated-Based Trass Rock

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East Java, Indonesia

335 In general[1] palm oil becomes the raw material of frying oil, therefore[2] palm oil needs to be processed at first before being consumed. However, this process has to pass through several stages, such as degumming, neutralization and[3] bleaching. In degumming phosphate acid of 85% as much as 0.15% from the weight of palm oil then it was stirred for 15 minutes at the temperature of 80 ∗C. After that, to neutralize it we added some solution of NaOH 11,1% (16∗Be) as much as 6% from the oil volume, then it was stirred for 25 minutes at the temperature of 60 ∗C. Meanwhile the novelty of this research could be seen from the bleaching process, the activated trass rock of HCl of 4% from the weight of oil was required[4] as a bleaching material. This process was undertaken[5] by[6] varying its heating temperature of 140, 160, 180, 200, 220 and[7] 240 ∗C. Furthermore, the bleaching times required were 15, 25, 35,IP4:5[8] 1a8n2d .52555m.i1nu.1te1s Oannd:thTehum[9] ,o1st7aMpparoypr2ia0te18co0nd6i:ti5o1n:o0f4heating temperature was 240 ∗C. Among those time varCiaotiopnysr,igthhet[10] :blAeamcheinrigcatimneSocfie15ntmifiincuPteus bwlaisshoebrtsained[11] the intensity of red color was 15 and the yellow was 38,9, free fatty aDceidlsivwearsed1,4b4y%Inagndenpetaroxide value was 7,30 meq O2 /kg.

Keywords: Trass Rock, Bleaching, Color's Absorption, Palm Oil.

INTRODUCTION

Frying oil is required and consumed by almost all of the Indonesian people. Therefore the need for it is getting more and more increasing from time to time.

In oil making process, ben- tonite is usually used as a bleaching material. However, there is the other alternative used as a bleaching material, that is trass rock instead of bentonite. The original material required as a bleaching material in oil making process is taken from the trass rock.

~

This kind of rock is used to process the palm oil into frying oil. As vegetable oil, palm oil is rich for its minor component having a good nutrition because it contains of some variations of carotene around 500–700 ppm. The highest carotene, especially that belongs to a- and þ contained in the palm oil is around 90% from the total amount of carotene. Therefore, þ-carotene is becoming the most important factor to obtain vitamin e A.

Besides, carotene also takes an important role to prevent cancer disease, cataract, and degenerative disease like heart.13

Furthermore, palm oil is produced from the fat or oil of fruit flesh with its specific color, orange–red. This is due to the high content of carotenoide.

Besides some pigment of some dirt like free fatty acids.2

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In general, the original color of palm oil is dark red before being processed. Therefore before being used and consumed as frying oil, it needs bleaching process to clear up the red color (pigment) and another compound in the palm oil. Those pigment and compounds do not smell and taste nice. In bleaching pro- cess, some certain particles of unwanted smell and taste might be absorbed.12

Meanwhile, the main parameter of the controller at the bleach- ing process is the particle's size of its bleaching material. Furthermore, the oil's proportion, the dosage of its bleaching material, temperature and contact time between

bleaching clay and oil are also important to consider.9 The performance of bleaching material was taken from the activated clay and dealing with reducing its color, the bleaching material had to be capa- ble of absorbing the palm oil.4 During the bleaching process, the dye material, peroxide and any other dirt are released from the raw material of palm oil. After bleaching process has finished, the oil's color performance is getting clearer and clearer. This might increase the stability of its product.5 Furthermore, bleach- ing earth can also omit some other particles like chlorophyll, carotenoids, phosphorlipids, metals and oxidation product of oil. However, so far, the only one system usually used to omit/clear up those particles is adsorption.7 Some kind of crude oil, color, the content of free fatty acids, taste, physical and other chemical

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characteristics are becoming the other parameter Jenis which is also essential to be concerned with in efforts to obtain the good quality of final product.4 However, to achieve the performance of optimal bleaching with the most economical cost in bleaching process several aspects to consider such as the

kind and quality of oil, degumming and purification/refinement or neutralization, the characteristics of oil being processed, processing condition and site plan of processing tools being used.11 Before bleaching process, some treatments of palm oil such as degumming and neutralization process have to be conducted at first. Degumming process is meant to eliminate some latex available in the palm oil without reducing the fatty acid in the oil and to precipitate some phosphatides which is not soluble in the water. Meanwhile, neutralization process is aimed at reducing or eliminating the free fatty acids available in the palm oil. The addition of NaOH solution during neutralization process has to be seen its concen- tration or volume of NaOH solution added so that the oil will not lose too much. The low value of water content in the raw palm oil might also cause the low content of free fatty acid. The water content might influence the percentage of free fatty acid in the oil and it must be diminished until reaching up 0,15% to 0,25% to avoid the increase of free fatty acid through autocat- alytic reaction.10 If the reaction between water and oil (triglis- eryde) happens in the palm oil, this reaction will be obtained glycerol and free fatty acid. Therefore, if the water content in the oil is quite high, this might cause the content of free fatty acids in the palm oil will be high also. It was suggested that the raw material of palm oil used as frying oil be oil having much content of unsaturated fatty acid. This is considered to be the healthy choice rather than that of containing saturated fatty acid.

same as what it was in preparation process. Then, those 21 liters of palm oil were done degumming by heating it up to 80 ∗C. After that, it was added with phosphate acid of 85% as much as 0.15% of the weight of palm oil and stirred for 15 minutes. The next, neutralization process was conducted by lowering/reducing its heating temperature of oil until 60 ∗C and added with NaOH solution with concentration of 11,1% (16∗Be) as much as 6% of the oil

volume and stirred for 25 minutes. After it had fin- ished, the oil was cooled. The next, it was centrifuged or filtered to separate oil and suds/soap. Oil, as the result of neutraliza- tion process was then analyzed its content of FFA and peroxide value by using titrimetri method. While for its color's intensity of oil, with lovibond method we used test equipment of tintome- ter series E. After preparation process of palm oil material had finished, the next process was bleaching process. In this process we weighed palm oil as much as 300 grams added with acti- vated trass rock of HCL of 4% from the oil's weight (12 grams of activated trass rock). This activated trass rock was obtained by activating the trass rock with 5 N of HCL solution with its comparison of 1:10 for 4 hours at its activation temperature of 105 ∗C. In this research, the bleaching process was conducted by varying its heating temperature, they were: 140, 160, 180, 200,

In general, frying oil has much unsaturated fatty acid so that 220 and 240 ∗C with its duration of 15, 25, 35, 45 and 55 min- utes. After being weight, palm oil was put into a baker glass of 500 ml and heated until its temperature reached up as it had been determined. After that, the activated trass rock was put and mixed in the palm oil being heated and then stirred until the tempera- ture reached up to the time limit already determined. After the bleaching process finished, the oil was filtered to isolate oil from its bleaching earth, that was activated trass rock. Having been

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suggested not to use it to fry many times. The more often the frying oil is used, the less amount of unsaturated fatty acid will be and the higher the saturated fatty acid of the frying oil. This might cause the value of peroxide in the frying oil increase due to the repeated heating. This could happen because the frying oil sustains oxidation process.6

This research was aimed at obtaining the operation condition of palm oil bleaching process using the bleaching material from activated trass rock of HCL as its absorption material. Therefore, it needs to vary several heating temperatures and the duration of bleaching time of palm oil. This process would be obtained the right condition where the red color contained in the palm oil would be absorbed as much as possible by the bleaching material of activated trass rock.

METHODOLOGY

Some materials required in this research were activated trass rock of HCl, NaOH, phosphate acid of 85%, aquadest and crude palm oil (CPO). Several equipments required were such as stove/heater, tank/baker glass, mixer, filter paper, funnel and thermometer. This research was conducted in two process stages, preparation of crude palm oil and bleaching process of palm oil. At first, the raw material of oil that would be used was ana- lyzed dealing with the content/level of free fatty acid (FFA) and its peroxide value to know the former quality of palm oil. For preparation process, the raw material of palm oil required was as much as 21 liters. This was meant that later when the bleaching process was conducted, the condition of palm oil would be the

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of tintometer series E, the content of FFA and its peroxide value with titrimetri method.

EXPERIMENTAL RESULT

Having been analyzed, it was known that the quality of the for- mer raw material of palm oil before being neutralized was as it was shown in Table I. The analysis result of palm oil after being neutralized might be seen in Table II. The analysis result of palm oil in a good condition after bleaching process can be seen in Table III.

Neutralization process of palm oil added with solution volume of NaOH 6% from the oil volume with its solution concentration of NaOH 11,1% of the oil's weight was capable of reducing the free fatty acid and peroxide value contained in palm oil might be seen in Tables I and II. It was shown that peroxide value was

formerly 12,28 meq O2 /kg and decreased into 7,70 meq O2 /kg. Meanwhile, before the oil had been neutralized, the free fatty acid was 5,70%, and after being neutralized it decreased into 1,98%. The reduction of free fatty acid was due to the reaction between the free fatty acid and NaOH solution when neutraliza-

tion process turned to soap and glycerol.

Table I. Data analysis of former palm oil.

Material	FFA (%)	Peroxide value (Meq O2/Kg)
Former palm oil	5.70	12,28

Table II. The data of analysis result of palm oil after being neutralized.

Palm oil after being neutralized

Intensity of oil's color

Red Yellow FFA (%)

59 30 1,98

Peroxide value (Meq O2/Kg)

7,70

The most important thing in bleaching process of palm oil was how the red color contained in the palm oil was like what it was said by Egbuna,2 could be reduced or absorbed the whole bleaching material or the activated trass rock so that the oil's color turned to clear yellow as the frying oil in general. However bleaching process could also reduce some other unwanted materials such as free fatty acid and peroxide value contained in the palm oil could be seen in Table III, it is the same as that expressed by Falaras.5 In line with the explanation above, in this research, the researcher wanted to see the

operational condi- tion of bleaching process by taking care of the effect of several variations of heating and bleaching time especially for bleach- ing material from activated trass rock. Based on the experiment, heating temperature and bleaching time took an important role to the oil result obtained either it was seen from its color's absorp- tion or the absorption aspects of the other elements. Furthermore, the effect of employing several kinds of heating temperature to the absorption of red color of oil might be seen in Figure 1 (one) below.

As it was performed in Figure 1 below that the effect of tem- perature to bleaching process had an important role to the absorp-

Fig. 1. The relationship between bleaching temperature and its intensity of red color.

This condition might cause the oil would become more easily to penetrate the pores of its bleaching material and make the oil's color easier to be absorbed. The good result of red color's absorp- tion was when the heating temperature reaching up to 240 ∗C with its bleaching time of 15 minutes. This condition could be capable of reducing the intensity of red color from 59 to 15 as it could be performed in Tables II and III. Based on the expla- nation above, it could be concluded that the two aspects which could make the red color in palm oil be easier to be well absorbed were high temperature and the surface broadness of activated trass rock. The high temperature might make the

loosening ties of oil's color and the surface broadness of activated trass rock could make the red color contained in the palm oil be well absorbed. There was about 74,6% of the red color of palm oil absorbed. However, we had to be cautious, otherwise the heating tempera-

tion of red color from palm oil. It coIPul :d1b8e2c.o2n5c5lu.d1e.d11thOatnt:heThu, t1u7re Mofa2y402∗0C1d8u0ri6ng:5t1he:0b4leaching time taking longer than it had to be was known that there was an intensity increase of red color.

higher the heating temperature in bleaching process, tDheelliovweerer d by Ingenta

the intensity of red color to the palm oil would be Usman.12 Fur- thermore, he said that the increase of bleaching efficiency would be followed by the temperature's increase to all adsorbens being used. These could be explained as follows, while the palm oil was being heated, it was expanding and this could reduce the oil's viscosity so that it could cause a better dispersion of oil's particle rather than what it was stated by Ejikeme.3 The expan- sion of palm oil could be seen from the existence of oil volume in the vessel or container. The higher the heating temperature in bleaching process, the greater the oil's expansion would be and the oil's viscosity would be getting smaller. This oil's expansion might cause the color's bond contained in the oil would be get- ting thinner and oil's color would become light red. Therefore, the red color contained in the palm oil would be getting eas- ier to be absorbed by the activated trass rock as the bleaching material. Besides, it might also be caused

by the oil's viscosity was getting smaller so that oil would become thinner and clearer.

This could be seen in Figure 1 (one). It was shown that start- ing from the bleaching time of 25, 35, 45 and 55 minutes, the intensity of red color of the oil was getting increased again. This increase was due to the quite high temperature during heating process. This condition could make the oxidation reaction caus- ing the oil's color turned darker. If the bleaching time took longer than it had to be, oil would keep on oxidizing. If this happened continually and the red color would keep on forming/establishing meanwhile its absorption power of bleaching material (the acti- vated trass rock) was getting decreased and decreased. Therefore, the red color contained in the oil's performance was not any longer the red color from carotenoids from the oil of the former's palm oil but the red color caused by the change of oxidized oil. This condition might cause the oil as the result of bleaching pro- cess turn its color into dark yellow. Meanwhile, the oil as the result of bleaching process within 15 minutes, its color looked clear yellow. This might be due to the bleaching time of 15 min- utes with its heating temperature of 240 ∗C had already been in balance with its bleaching process. Therefore, if the bleaching time was longer than 15 minutes, the red color from its pigment that had already been absorbed, it would be released again and

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Table III. Data analysis of palm oil after bleaching process.

Bleaching

Bleaching

Intensity of

Peroxide

7,45

time (minute)

15

temperature (∗C)

140

oil's

Red

46,1

color

Yellow

31

FFA (%) 1,62

value (meq O2/kg)

7,72

it would enter the oil. The balance achieved by each oil material

was different from one and another.1 Furthermore, his experi- ment result was

said that corn oil could achieve its balance after

160

41

31

1,21

6,90

2 hours at 45 ∗C, and after 30 minutes at 85 ∗C. On the other

180

33

29

1,42

4,44

hand[299], oil from the sun flower's seed was much faster. It was said

200

23,3

35

1,51

5,25

that at 45 ∗C the balance would be achieved after 40 minutes

220

15,4

39,8

1,19

240

15

38,9

1,44

7,30

15 minutes. This condition might be assumed that the bleaching[300]

and the heating temperature of 85 ∗C would be achieved after

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process[301,302] taking a long time would not provide the good[303,304] result as[305] what we had expected. In other words, the bleaching process had to be conducted[306] at an exact heating temperature and exact bleaching time.8

CONCLUSIONS

Based on the experiment, the research result could be concluded that in bleaching process, heating temperature took an important role in the color's absorption of palm oil. However, the longer time of bleaching would not provide a good result. Therefore, we had to take care of the balance of color's absorption from the bleaching material being used. In this research, the best quality of oil product was obtained from the heating temperature of 240 ∗C and bleaching time of 15 minutes. In this condition, the intensity of red color could be decreased from 59 to 15 and the intensity of yellow color could be increased from 30 to 38,9. Besides, it could be capable of absorbing the content of free fatty acid (FFA) from 1,98% to 1,44%, as well as reducing its peroxide value from 7,70 meq O2/kg to 7,30 meq O2/kg.

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1.	general,	Punctuation in Compound/Complex Sentences	Correctness
2.	~~, therefore~~ → . Therefore, ; therefore	Punctuation in Compound/Complex Sentences	Correctness
3.	, and	Comma Misuse within Clauses	Correctness
4.	*was required*	Passive Voice Misuse	Clarity
5.	*was undertaken*	Passive Voice Misuse	Clarity
6.	~~undertaken by~~ → undertaken by	Improper Formatting	Correctness
7.	, and	Punctuation in Compound/Complex Sentences	Correctness
8.	, IP4:5	Improper Formatting	Correctness
9.	~~thTehum~~ → the hum	Misspelled Words	Correctness
10.	*igthhet*	Unknown Words	Correctness
11.	*bwlaisshoebrtsained*	Unknown Words	Correctness
12.	the oil	Determiner Use (a/an/the/this, etc.)	Correctness
13.	~~oil making~~ → oil-making	Misspelled Words	Correctness
14.	~~ben tonite~~ → bentonite	Confused Words	Correctness
15.	*is usually used*	Passive Voice Misuse	Clarity
16.	~~that is~~ → which is	Pronoun Use	Correctness
17.	~~material~~ → content	Word Choice	Engagement
18.	the oil	Determiner Use (a/an/the/this, etc.)	Correctness
19.	*is taken*	Passive Voice Misuse	Clarity

20.	~~As~~ → Like	Wrong or Missing Prepositions	Correctness
21.	~~a~~ good	Determiner Use (a/an/the/this, etc.)	Correctness
22.	~~good~~ → proper	Word Choice	Engagement
23.	~~of~~	Wrong or Missing Prepositions	Correctness
24.	oil,	Punctuation in Compound/Complex Sentences	Correctness
25.	~~oil is~~ → oil is	Improper Formatting	Correctness
26.	~~from~~ → of	Wrong or Missing Prepositions	Correctness
27.	~~þ-carotene is~~ → þ-carotene is	Improper Formatting	Correctness
28.	~~important~~ → crucial, critical, essential	Word Choice	Engagement
29.	~~to obtain~~ → in obtaining	Wrong or Missing Prepositions	Correctness
30.	*is produced*	Passive Voice Misuse	Clarity
31.	~~the fat~~ → the fat	Improper Formatting	Correctness
32.	~~fat or~~ → fat or	Improper Formatting	Correctness
33.	~~or oil~~ → or oil	Improper Formatting	Correctness
34.	~~oil of~~ → oil of	Improper Formatting	Correctness
35.	~~of fruit~~ → of fruit	Improper Formatting	Correctness
36.	~~orange red~~ → orange-red	Misspelled Words	Correctness
37.	*This*	Intricate Text	Clarity
38.	~~carotenoids~~ → carotenoids,	Misspelled Words	Correctness

	carotenoid		
39.	*be addressed*	Passive Voice Misuse	Clarity
40.	a bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
41.	~~Those pigment~~ → That pigment, Those pigments	Determiner Use (a/an/the/this, etc.)	Correctness
42.	~~nice~~ → excellent, sweet	Word Choice	Engagement
43.	~~pro cess~~ → process	Confused Words	Correctness
44.	~~certain~~ → individual	Word Choice	Engagement
45.	~~bleach ing~~ → bleaching	Confused Words	Correctness
46.	~~important~~ → crucial	Word Choice	Engagement
47.	~~capa ble~~ → capable	Confused Words	Correctness
48.	, and	Comma Misuse within Clauses	Correctness
49.	*are released*	Passive Voice Misuse	Clarity
50.	*Furthermore, the oil's proportion, the dosage of its bleaching material, temperature and contact time between bleaching clay and oil are also important to consider.9 The performance of bleaching material was taken from the activated clay and dealing with reducing its color, the bleaching material h...*	Hard-to-read text	Clarity
51.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
52.	~~clearer~~ → more transparent, more precise, more apparent	Word Choice	Engagement
53.	*This*	Intricate Text	Clarity

54.	~~bleach ing~~ → bleaching	Confused Words	Correctness
55.	~~phosphorlipids~~ → phospholipids	Misspelled Words	Correctness
56.	, and	Punctuation in Compound/Complex Sentences	Correctness
57.	~~product~~ → products	Incorrect Noun Number	Correctness
58.	~~kind of~~	Weak or Uncertain Language	Delivery
59.	~~other chemical~~ → another chemical, other chemicals	Determiner Use (a/an/the/this, etc.)	Correctness
60.	chemical.	Closing Punctuation	Correctness
61.	~~characteristics~~ → Characteristics	Improper Formatting	Correctness
62.	~~with in~~ → within	Confused Words	Correctness
63.	~~good~~ → excellent	Word Choice	Engagement
64.	*characteristics are becoming the other parameter Jenis which is also essential to be concerned with in efforts to obtain the good quality of final product.4 However, to achieve the performance of optimal bleaching with the most economical cost in bleaching process several aspects to consider such...*	Hard-to-read text	Clarity
65.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
66.	, such	Punctuation in Compound/Complex Sentences	Correctness
67.	~~process~~ → processes	Incorrect Noun Number	Correctness
68.	process,	Punctuation in Compound/Complex Sentences	Correctness

69.	*be conducted*	Passive Voice Misuse	Clarity
70.	The degumming	Determiner Use (a/an/the/this, etc.)	Correctness
71.	~~palm oil~~ → palm oil	Improper Formatting	Correctness
72.	, which	Punctuation in Compound/Complex Sentences	Correctness
73.	~~is~~ → are	Faulty Subject-Verb Agreement	Correctness
74.	the neutralization	Determiner Use (a/an/the/this, etc.)	Correctness
75.	*is aimed*	Passive Voice Misuse	Clarity
76.	~~or eliminating~~ → or eliminating	Improper Formatting	Correctness
77.	the neutralization	Determiner Use (a/an/the/this, etc.)	Correctness
78.	*be seen*	Passive Voice Misuse	Clarity
79.	as its	Wrong or Missing Prepositions	Correctness
80.	~~concen tration~~ → concentration	Confused Words	Correctness
81.	~~added so~~ → added so	Improper Formatting	Correctness
82.	~~oil~~ → fat	Word Choice	Engagement
83.	~~will not~~ → will not	Improper Formatting	Correctness
84.	~~percentage of~~ → percentage of	Improper Formatting	Correctness
85.	~~of free~~ → of free	Improper Formatting	Correctness
86.	, and	Punctuation in Compound/Complex Sentences	Correctness

87.	*be diminished*	Passive Voice Misuse	Clarity
88.	~~autocat alytic~~ → autocatalytic	Confused Words	Correctness
89.	~~triglis~~ → triangles, trials	Misspelled Words	Correctness
90.	~~eryde~~ → erode, Pryde	Misspelled Words	Correctness
91.	*be obtained*	Passive Voice Misuse	Clarity
92.	~~and free~~ → and free	Improper Formatting	Correctness
93.	~~in the~~ → in the	Improper Formatting	Correctness
94.	*was suggested*	Passive Voice Misuse	Clarity
95.	*This*	Intricate Text	Clarity
96.	~~the healthy~~ → a healthy	Determiner Use (a/an/the/this, etc.)	Correctness
97.	saturated fatty	Improper Formatting	Correctness
98.	the same	Determiner Use (a/an/the/this, etc.)	Correctness
99.	~~same~~ → Same	Improper Formatting	Correctness
100.	the preparation	Determiner Use (a/an/the/this, etc.)	Correctness
101.	~~up~~	Wordy Sentences	Clarity
102.	next,	Punctuation in Compound/Complex Sentences	Correctness
103.	a concentration	Determiner Use (a/an/the/this, etc.)	Correctness
104.	~~fin ished~~ → finished	Confused Words	Correctness
105.	~~result of~~ → result of	Improper Formatting	Correctness

106.	~~neutraliza tion~~ → neutralization	Confused Words	Correctness
107.	process,	Punctuation in Compound/Complex Sentences	Correctness
108.	~~titrimetri~~ → titrimetric, titrimetry	Misspelled Words	Correctness
109.	the titrimetri	Determiner Use (a/an/the/this, etc.)	Correctness
110.	~~its~~ → it's, it is	Commonly Confused Words	Correctness
111.	~~lovibond~~ → Lovibond	Misspelled Words	Correctness
112.	the lovibond	Determiner Use (a/an/the/this, etc.)	Correctness
113.	method,	Punctuation in Compound/Complex Sentences	Correctness
114.	~~tintome~~ → income	Misspelled Words	Correctness
115.	~~ter~~ → her	Misspelled Words	Correctness
116.	the preparation	Determiner Use (a/an/the/this, etc.)	Correctness
117.	process,	Comma Misuse within Clauses	Correctness
118.	~~acti vated~~ → activated	Confused Words	Correctness
119.	~~oil's weight~~ → oil's weight	Improper Formatting	Correctness
120.	*was obtained*	Passive Voice Misuse	Clarity
121.	*was conducted*	Passive Voice Misuse	Clarity
122.	~~, they~~ → ; they, , and they, . They	Punctuation in Compound/Complex Sentences	Correctness
123.	, and	Punctuation in	Correctness

		Compound/Complex Sentences	
124.	~~min utes~~ → minutes	Confused Words	Correctness
125.	*been determined*	Passive Voice Misuse	Clarity
126.	~~being~~ → is	Incorrect Verb Forms	Correctness
127.	*being heated*	Passive Voice Misuse	Clarity
128.	~~tempera ture~~ → temperature	Confused Words	Correctness
129.	~~that was~~ → which was	Pronoun Use	Correctness
130.	icthPeuobillisrehseurltsed in	Improper Formatting	Correctness
131.	~~in bleaching~~ → in bleaching	Improper Formatting	Correctness
132.	~~bleaching was~~ → bleaching was	Improper Formatting	Correctness
133.	~~was then~~ → was then	Improper Formatting	Correctness
134.	*was then analyzed*	Passive Voice Misuse	Clarity
135.	~~then analyzed~~ → then analyzed	Improper Formatting	Correctness
136.	~~analyzed for~~ → analyzed for	Improper Formatting	Correctness
137.	~~for its~~ → for its	Improper Formatting	Correctness
138.	~~viet~~ → Viet	Misspelled Words	Correctness
139.	*ries*	Unknown Words	Correctness
140.	~~lovibond~~ → Lovibond	Misspelled Words	Correctness
141.	equipment.	Closing Punctuation	Correctness
142.	~~RE SEARCH~~ → RESEARCH	Confused Words	Correctness
143.	~~suggested~~ → Suggested	Improper Formatting	Correctness

144.	, and	Punctuation in Compound/Complex Sentences	Correctness
145.	*This*	Intricate Text	Clarity
146.	*This*	Intricate Text	Clarity
147.	*was aimed*	Passive Voice Misuse	Clarity
148.	the palm	Determiner Use (a/an/the/this, etc.)	Correctness
149.	heating temperatures	Improper Formatting	Correctness
150.	temperatures and	Improper Formatting	Correctness
151.	~~the duration~~ → the duration	Improper Formatting	Correctness
152.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
153.	*be obtained*	Passive Voice Misuse	Clarity
154.	in the	Wrong or Missing Prepositions	Correctness
155.	activated trass	Improper Formatting	Correctness
156.	~~aquadest~~ → aqua dest	Misspelled Words	Correctness
157.	~~aquadest and~~ → aquadest and	Improper Formatting	Correctness
158.	, and	Punctuation in Compound/Complex Sentences	Correctness
159.	~~and crude~~ → and crude	Improper Formatting	Correctness
160.	~~equipments~~ → types of equipment, pieces of equipment	Incorrect Noun Number	Correctness
161.	~~required were~~ → required were	Improper Formatting	Correctness
162.	~~such as~~ → such as	Improper Formatting	Correctness

163.	, and	Comma Misuse within Clauses	Correctness
164.	*was conducted*	Passive Voice Misuse	Clarity
165.	*be used*	Passive Voice Misuse	Clarity
166.	~~ana-lyzed~~ → analyzed	Confused Words	Correctness
167.	the preparation	Determiner Use (a/an/the/this, etc.)	Correctness
168.	*This*	Intricate Text	Clarity
169.	*was meant*	Passive Voice Misuse	Clarity
170.	*was conducted*	Passive Voice Misuse	Clarity
171.	, and	Punctuation in Compound/Complex Sentences	Correctness
172.	~~titrimetri~~ → titrimetric, titrimetry	Misspelled Words	Correctness
173.	*Having been analyzed*	Misplaced Words or Phrases	Correctness
174.	*was known*	Passive Voice Misuse	Clarity
175.	~~for mer~~ → former	Confused Words	Correctness
176.	~~material of~~ → material of	Improper Formatting	Correctness
177.	~~oil before~~ → oil before	Improper Formatting	Correctness
178.	being neutralized	Improper Formatting	Correctness
179.	neutralized was	Improper Formatting	Correctness
180.	~~as it~~ → as it	Improper Formatting	Correctness
181.	*Having been analyzed, it was known that the quality of the for- mer raw material of palm oil before being neutralized was as it was shown in*	Hard-to-read text	Clarity

	Table I. The analysis result of palm oil after being neutralized might be seen in Table II.		
182.	~~result of~~ → result of	Improper Formatting	Correctness
183.	in good condition	Determiner Use (a/an/the/this, etc.)	Correctness
184.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
185.	*be seen*	Passive Voice Misuse	Clarity
186.	~~contained in~~ → contained in	Improper Formatting	Correctness
187.	~~might be~~ → might be	Improper Formatting	Correctness
188.	*was shown*	Passive Voice Misuse	Clarity
189.	*been neutralized*	Passive Voice Misuse	Clarity
190.	neutralized,	Punctuation in Compound/Complex Sentences	Correctness
191.	~~into~~ → to	Wrong or Missing Prepositions	Correctness
192.	~~neutraliza~~ → neutralize, neutralized	Misspelled Words	Correctness
193.	~~tion~~ → on, Cian	Misspelled Words	Correctness
194.	*Table I. Data analysis of former palm oil.*	Incomplete Sentences	Correctness
195.	the analysis	Determiner Use (a/an/the/this, etc.)	Correctness
196.	The intensity	Determiner Use (a/an/the/this, etc.)	Correctness
197.	~~important~~ → crucial, essential, critical	Word Choice	Engagement

198.	Egbuna said it	Passive Voice Misuse	Clarity
199.	*The most important thing in bleaching process of palm oil was how the red color contained in the palm oil was like what it was said by Egbuna,2 could be reduced or absorbed the whole bleaching material or the activated trass rock so that the oil's color turned to clear yellow as the frying oil...*	Hard-to-read text	Clarity
200.	~~How ever~~ → However	Confused Words	Correctness
201.	~~and peroxide~~ → and peroxide	Improper Formatting	Correctness
202.	~~peroxide value~~ → peroxide value	Improper Formatting	Correctness
203.	value contained	Improper Formatting	Correctness
204.	~~as that~~ → as that	Improper Formatting	Correctness
205.	~~condi tion~~ → condition	Confused Words	Correctness
206.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
207.	, especially	Punctuation in Compound/Complex Sentences	Correctness
208.	~~bleach ing~~ → bleaching	Confused Words	Correctness
209.	~~important~~ → essential, vital	Word Choice	Engagement
210.	~~to~~ → in	Wrong or Missing Prepositions	Correctness
211.	*was seen*	Passive Voice Misuse	Clarity
212.	~~its~~ → it's, it is	Commonly Confused Words	Correctness
213.	~~absorp tion~~ → absorption	Confused Words	Correctness
214.	~~temperature~~ → temperatures	Incorrect Noun Number	Correctness

215.	the red	Determiner Use (a/an/the/this, etc.)	Correctness
216.	*tem*	Unknown Words	Correctness
217.	*perature*	Unknown Words	Correctness
218.	~~important~~ → essential	Word Choice	Engagement
219.	~~to~~ → in	Wrong or Missing Prepositions	Correctness
220.	*absorp*	Unknown Words	Correctness
221.	~~good~~ → excellent	Word Choice	Engagement
222.	~~absorp tion~~ → absorption	Confused Words	Correctness
223.	temperature is, or temperature was	Incorrect Verb Forms	Correctness
224.	~~capable of~~ → capable of	Improper Formatting	Correctness
225.	~~of reducing~~ → of reducing	Improper Formatting	Correctness
226.	~~reducing the~~ → reducing the	Improper Formatting	Correctness
227.	~~of red~~ → of red	Improper Formatting	Correctness
228.	~~color from~~ → color from	Improper Formatting	Correctness
229.	15,	Punctuation in Compound/Complex Sentences	Correctness
230.	*be performed*	Passive Voice Misuse	Clarity
231.	~~expla nation~~ → explanation	Confused Words	Correctness
232.	~~be~~	Wordy Sentences	Clarity
233.	~~easier~~ → more natural, more comfortable	Word Choice	Engagement

234.	~~make~~ → cause	Word Choice	Engagement
235.	~~make the~~ → make the	Improper Formatting	Correctness
236.	color contained	Improper Formatting	Correctness
237.	~~contained in~~ → contained in	Improper Formatting	Correctness
238.	~~palm oil~~ → palm oil	Improper Formatting	Correctness
239.	~~be well~~ → be well	Improper Formatting	Correctness
240.	~~tion~~ → on, notion, Cian	Misspelled Words	Correctness
241.	~~tion of~~ → tion of	Improper Formatting	Correctness
242.	~~of red~~ → of red	Improper Formatting	Correctness
243.	~~red color~~ → red color	Improper Formatting	Correctness
244.	~~color from~~ → color from	Improper Formatting	Correctness
245.	~~from palm~~ → from palm	Improper Formatting	Correctness
246.	~~palm oil~~ → palm oil	Improper Formatting	Correctness
247.	~~colPul~~ → could	Misspelled Words	Correctness
248.	~~heThu~~ → Thu	Misspelled Words	Correctness
249.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
250.	~~the intensity~~ → The intensity	Improper Formatting	Correctness
251.	~~Fur thermore~~ → Furthermore	Confused Words	Correctness
252.	*be followed*	Passive Voice Misuse	Clarity
253.	~~increase~~ → addition, rise	Word Choice	Engagement

254.	~~adsorbens~~ → adsorbents, adsorbent	Misspelled Words	Correctness
255.	*being used*	Passive Voice Misuse	Clarity
256.	*being heated*	Passive Voice Misuse	Clarity
257.	, and	Punctuation in Compound/Complex Sentences	Correctness
258.	Ejikeme stated it	Passive Voice Misuse	Clarity
259.	~~expan sion~~ → expansion	Confused Words	Correctness
260.	*be seen*	Passive Voice Misuse	Clarity
261.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
262.	, and	Punctuation in Compound/Complex Sentences	Correctness
263.	~~expansion~~ → increase	Word Choice	Engagement
264.	~~be get~~ → get	Incorrect Verb Forms	Correctness
265.	, and	Punctuation in Compound/Complex Sentences	Correctness
266.	~~contained in~~ → contained in	Improper Formatting	Correctness
267.	~~eas ier~~ → easier	Confused Words	Correctness
268.	*be caused*	Passive Voice Misuse	Clarity
269.	~~clearer~~ → more transparent, more precise, more apparent, brighter	Word Choice	Engagement
270.	*This*	Intricate Text	Clarity
271.	*be seen*	Passive Voice Misuse	Clarity

272.	*was shown*	Passive Voice Misuse	Clarity
273.	~~shown that~~ → shown that	Improper Formatting	Correctness
274.	~~start ing~~ → starting	Confused Words	Correctness
275.	, and	Punctuation in Compound/Complex Sentences	Correctness
276.	the red	Determiner Use (a/an/the/this, etc.)	Correctness
277.	~~the~~ quite	Determiner Use (a/an/the/this, etc.)	Correctness
278.	the heating	Determiner Use (a/an/the/this, etc.)	Correctness
279.	~~caus ing~~ → causing	Confused Words	Correctness
280.	~~acti vated~~ → activated	Confused Words	Correctness
281.	~~oil~~ → fat	Word Choice	Engagement
282.	~~oil~~ → fat	Word Choice	Engagement
283.	~~pro cess~~ → process	Confused Words	Correctness
284.	~~turn~~ → turns	Faulty Subject-Verb Agreement	Correctness
285.	¶ Meanwhile...	Intricate Text	Clarity
286.	~~of bleaching~~ → of bleaching	Improper Formatting	Correctness
287.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
288.	bleaching process	Improper Formatting	Correctness
289.	~~process within~~ → process within	Improper Formatting	Correctness
290.	~~clear~~ → bright	Word Choice	Engagement

291.	*This*	Intricate Text	Clarity
292.	~~min utes~~ → minutes	Confused Words	Correctness
293.	~~was~~ → were	Inappropriate Colloquialisms	Delivery
294.	*been absorbed*	Passive Voice Misuse	Clarity
295.	~~released again~~ → rereleased	Word Choice	Engagement
296.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
297.	~~it~~ → It	Improper Formatting	Correctness
298.	~~experi ment~~ → experiment	Confused Words	Correctness
299.	~~hand~~ → Hand	Improper Formatting	Correctness
300.	bleaching.	Closing Punctuation	Correctness
301.	the process, or a process	Determiner Use (a/an/the/this, etc.)	Correctness
302.	~~process~~ → Process	Improper Formatting	Correctness
303.	~~the good~~ → a good	Determiner Use (a/an/the/this, etc.)	Correctness
304.	~~good~~ → excellent	Word Choice	Engagement
305.	~~result as~~ → result as	Improper Formatting	Correctness
306.	*be conducted*	Passive Voice Misuse	Clarity
307.	*be concluded*	Passive Voice Misuse	Clarity
308.	the bleaching	Determiner Use (a/an/the/this, etc.)	Correctness
309.	the heating	Determiner Use (a/an/the/this, etc.)	Correctness

310.	~~took~~ → played	Incorrect Phrasing	Correctness
311.	~~from the~~ → from the	Improper Formatting	Correctness
312.	*being used*	Passive Voice Misuse	Clarity
313.	~~product~~ → products	Incorrect Noun Number	Correctness
314.	*was obtained*	Passive Voice Misuse	Clarity
315.	*be decreased*	Passive Voice Misuse	Clarity
316.	, and	Punctuation in Compound/Complex Sentences	Correctness
317.	~~intensity of~~ → intensity of	Improper Formatting	Correctness
318.	~~of yellow~~ → of yellow	Improper Formatting	Correctness
319.	~~color could~~ → color could	Improper Formatting	Correctness
320.	*be increased*	Passive Voice Misuse	Clarity
321.	~~increased from~~ → increased from	Improper Formatting	Correctness
322.	, (2000	Punctuation in Compound/Complex Sentences	Correctness
323.	~~Jaarin~~ → Jain	Misspelled Words	Correctness
324.	, (2012	Punctuation in Compound/Complex Sentences	Correctness
325.	, (2009	Punctuation in Compound/Complex Sentences	Correctness
326.	~~Sci ences~~ → Sciences	Confused Words	Correctness
327.	*J. T. Nwabanne and F. C. Ekwu, International Journal of Multidisciplinary Sci- ences and Engineering 4, 20 (2013).*	Incomplete Sentences	Correctness

328.	, and	Punctuation in Compound/Complex Sentences	Correctness
329.	~~Engi neering~~ → Engineering	Confused Words	Correctness
330.	*Received: 29 August 2016.*	Incomplete Sentences	Correctness
331.	, 2017	Punctuation in Compound/Complex Sentences	Correctness
332.	*Copyright © 2017 American Scientific Publishers All rights reserved Printed in the United States of America*	Anti-Inflammatory Activity of Cream Type O/W with ... http://eprints.uad.ac.id/14080/1/Nining%20ASL.pdf	Originality
333.	*The Effect of Heating Temperature at the Bleaching Process of Palm Oil to the Color's Absorption of Activated-Based Trass Rock*	Clay Characterization and Optimisation of Bleaching ... https://www.scirp.org/journal/PaperInforCitation.aspx?PaperID=51459	Originality
334.	*Department of Chemical Engineering, Universitas Pembangunan Nasional "Veteran" Jawa Timur Raya Rungkut Madya Gunung Anyar Surabaya 60294, East Java, Indonesia*	The Effect of Heating Temperature at the Bleaching Process ... https://www.ingentaconnect.com/contentone/asp/asl/2017/00000023/00000012/art00129	Originality
335.	*In general palm oil becomes the raw material of frying oil, therefore palm oil needs to be processed at first before being consumed. However, this process has to pass through several stages, such as degumming, neutralization and bleaching. In degumming phosphate acid of 85% as much as 0.15% from th...*	The Effect of Heating Temperature at the Bleaching Process ... https://www.ingentaconnect.com/contentone/asp/asl/2017/00000023/00000012/art00129	Originality
336.	*This is due to the high content of*	The 12 best foods and drinks that are good for the liver https://www.medicalnewstoday.com/articles/323915.php	Originality
337.	*Adv. Sci. Lett. Vol. 23, No. 12, 2017 1936-6612/2017/23*	Anti-Inflammatory Activity of Cream Type O/W with ...	Originality

		http://eprints.uad.ac.id/14080/1/Nining%20ASL.pdf	
338.	*trass rock of HCL of 4% from the*	The Effect of Heating Temperature at the Bleaching Process ... https://www.ingentaconnect.com/contentone/asp/asl/2017/00000023/00000012/art00129	Originality