

# Effectiveness Test of Natural Detoxification Facial Wash Gel Activated Charcoal Palm Shells Using Habatussaudah Scrub

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## ABSTRACT

Natural detoxification can be obtained by using Habatussaudah which has the ability to increase the natural excretion of toxins from our body. To increase the ability of facial wash gel, activated charcoal palm shell in terms of absorption of toxins, it was further developed with the addition of Habatussaudah as a scrub. This study aims to determine the effectiveness of natural detoxification facial wash gel, activated charcoal palm shell with Habatussaudah scrub according to lost black spot on facial pores after observation using a digital microscope. The facial wash gel was prepared into 3 formulas with a concentration of palm shell activated charcoal and Habatussaudah 2:1 (FI), 4:2 (FII) and 6:3 (FIII). The procedure in this study included the manufacture of activated charcoal from palm kernel shells and Habatussaudah powder, making facial wash gel type w/w, irritation test, hedonic test and facial skin moisture test as well as the effectiveness of natural detoxification using a digital microscope which was compared before and after use. Facial wash gel "biore" was used as a positive control. The results showed that all formulas were safe when used and the panelists preferred the FI can be obtained 50% compared to other formulas. The effectiveness of facial detoxification showed that FI was able to remove toxins and impurities after use and there was an increase in water content of 14.70% and a decrease in oil content of 14.60% with a brightness level of type 8 to 2 compared to other formulas and positive control. From these results, it can be concluded that the FI facial wash gel with a concentration of 2:1 palm shell activated charcoal and Habatussaudah is safe to use and effective as a natural detoxifier.

**Keywords:** facial wash gel, habatussaadah, natural detoxification

## 1. INTRODUCTION

Generally, the human body is susceptible to toxins that come from food preservatives or air pollution (motor vehicle fumes). Toxins will accumulate in large components and attack body tissue cells which can cause tissue cell damage in addition to allergies, decreased immunity and premature aging of the face. Therefore, natural detoxification is needed to absorb toxins in the body [6].

Detoxification is the process of removing toxic substances from the body. Natural detoxification can be obtained by using Habatussaudah. Habatussaudah or known as black cumin (*Nigella sativa*) contains thymoquinone which has antioxidant, anti-inflammatory and antibacterial properties [3]. Habatussaudah has the ability to increase the production of toxins (toxins) naturally from our bodies. Habatussaudah

is also widely added to skin care products with the aim of preventing premature aging and softening the skin, including facial wash gel [2].

Previous research has shown that facial wash gels made from palm shell activated charcoal have a better ability than other activated charcoals such as coconut shells and nipah shells in terms of absorption of oil, dirt or toxins (toxins) [5]. To increase the ability of facial wash gel, activated charcoal palm shell in terms of absorption of toxins (toxins), then it was further developed with the addition of Habatussaudah. Based on the ability of Habatussaudah, it is expected that in combination with facial wash gel, activated charcoal palm shells have more functions, not only as an absorber of oil, dirt, but also able to rejuvenate skin cells so that the skin becomes clean, healthy, soft, supple and firm. Based on the ability of the toxin absorption activity by activated charcoal of palm shells and black seed, it is necessary to develop a product through the manufacture of facial wash gel preparations of palm shell activated charcoal

with the addition of black seed or black cumin as a cleansing scrub, brightening, firming and skin smoothing agent. With the multifunctionality of this facial wash gel, it is expected that later it will be able to compete with commercial facial wash gels on the market, where so far no facial wash gel has been found that has both multifunctionality and detoxification.

**2. METHODS**

The material used in this study was activated charcoal from oil palm which was obtained from PT Sumbertama Nusa Pertiwi, Parit Village, Sungai Gelam District, Muara Jambi. The ingredients used for the formulation are Carbopol 940, sodium laurel sulfate, TEA, methyl paraben, propyl paraben, propylene glycol, and distilled water.

The tools and equipment should be mentioned in the procedure in this study were: furnace, water bath, oven, digital microscope, erlenmeyer, beaker glass, measuring cup, test tube, hot plate, petri dish, object glass, stirring rod, porcelain dish, funnel, analytical balance, magnetic stirrer, pH meter, mortar and stamper and glassware.

This research was carried out namely the preparation of activated charcoal and the formulation of facial gel

preparations. The effectiveness test of the preparation includes irritation test, hedonic test, skin brightness, skin moisture and the effectiveness of natural detoxification using respondents.

**2.1. Making Facial Wash Gel**

The preparation is made by heating 35 mL of water until it boils and CO<sub>2</sub> is liberated. two g of carbopol 940 was dispersed by dispersing carbopol in heated water and grinding slowly (mass A). TEA was dissolved with the remaining water until homogeneous to be added to mass A. Crushed propylene glycol, propyl paraben, and methyl paraben until homogeneous (mass B). Added mass B slowly to mass A while grinding slowly. The homogeneous base was then added with SLS (sodium lauryl sulfate) and stirred slowly so as not to form foam during grinding. Then put in the activated charcoal of palm shells and Habatussaudah, little by little accompanied by stirring slowly. Then add fragrance and stir again slowly [1,9].

**Table 1 Formula of Facial Wash Gel Activated Charcoal Palm shell with Habatussaudah scrub**

The Material	concentration (% weight/Volume)				Function	control (+)
	Control (-)	FI	FII	FIII		
Activated Charcoal Palm Shell	0	2	4	6	Active substance	
Habatussaudah	1	1	1	1	Scrub detoxifier	
Carbopol 940	2	2	2	2	Gelling agent	
Sodium Lauryl Sulfat	2.5	2.5	2.5	2.5	Foaming agent	Biore Men's
Propylene Glycol	2.5	2.5	2.5	2.5	Humektan	Bamboo Charcoal
Triethanolamine	2	2	2	2	Neutralizer	
Proyil Paraben	0.18	0.18	0.18	0.18	Preservative	
Metyl Paraben	0.02	0.02	0.02	0.02	Preservative	
Green tea fragrance oil	0.01	0.01	0.01	0.01	Fragrance	
Distilled water	ad 100	ad 100	ad 100	ad 100	Solvent	

**Table 2. Recapitulation of the Effectiveness Test of facial wash gel**

Category	FI		FII		FIII	
	Before	After	Before	After	Before	After
Water content	34.50	49.20 Increase 14.70%*	3.30	48.00 Increase 9.70%	38.10	49.40 Increase 11.30%
Oil content	34.40	19.80 down 14.60%*	31.60	22.20 down 11.40%	33.90	2.90 down 13.00%
Irritation	-	No*	-	No*	-	No*
Dirt absorption	Yes	No*	Yes	No *	Yes	No
Hedonic Brightness	- 8*	50 %* 2*	- 8	30 % 4	- 8	20 % 3

\*it means there is the best .

**2.2. Irritation Test**

Performed by the patch test method, by attaching facial wash gel to the skin with Wattman paper coated with polyethylene film with a diameter of 2 cm. The patch test is carried out on the skin behind the body for 24 hours, after which it is removed and marked. Results are assessed 25-30 minutes during lifting. Observed for an irritant reaction in the form of heat, itching or stinging, then noted. Irritation test was carried out by 10 panelists (Lestari et al, 2021)

**2.3. Hedonic Test**

The test is done by prepared at the level of preference called the hedonic scale, namely very like (5), like (4), somewhat like (3), dislike (2), and very dislike (1) on the color, aroma, and sensation of the skin. The level of preference for the product or preparation is carried out by 10 panelists [8]. Skin Moisture Test (moisture content and oil content). The test was carried out on the face before and after using the facial wash gel using a Skin Analyzer by observing the percent water/moisture and oil content in 10 respondents. Tests were also carried out on 1 respondent with the use of control preparations (-) and control preparations (+). Recorded and observed skin moisture before and after use. Then compared with control (-) and control (+) [7].

**2.4. Skin Brightness Test**

The test was carried out by prepared at the comparison of the respondent's facial skin color before and after the use of facial wash gel activated charcoal nipah shell, control (-) and control (+). The level of skin brightness is seen using 18 skin tone scales [7].



**Figure 1. Skin Brightness Level (Anonymous, 2019)**

**2.5. Effectiveness test of Facial Wash Gel in Microscopic absorption of toxins**

Tests were carried out using a digital microscope (Skin and hair analyzer computer 8 LED 1000x USB Digital stand). The measurement application is installed in the CD-Driver with the aim of connecting the microscope with a laptop/PC (Personal Computer). Connected the microscope to a laptop using the available USB, then open the application that has been installed to view the images observed using the microscope in real time. To focus the microscope can be done by sliding the focus wheel and to take pictures of observations through the microscope is done by pressing the red button or snapshot button.

The microscopic effectiveness test was carried out by observing the dirt in the respondent's pores before and after the use of face wash gel activated charcoal nipah shells. Then compared with the pores of the respondents before and after the use of control (-) and control (+) [11].

**3. RESULTS AND DISCUSSION**

Based on the results of irritation test, hedonic test, skin moisture, skin brightness, irritation, effectiveness of cleaning dirt and oil using a digital microscope. The results

of the recapitulation of the effectiveness of the facial wash gel can be seen in the table below:

**3.1 Irritation Test.**

The test results on 10 panelists showed that the two tested palm shell activated charcoal gel facial washes showed negative results that did not irritate the skin. Which characterized by not causing itching, red and hot at the time of testing. So it can be concluded that both facial wash gels can be used on the skin safely [10].

In the irritation test conducted on 10 panelists after using facial wash gel on the face, the results of the irritation test can be seen in table 9 below.

**Table 3. Irritation test results**

For mula	Volunteers									
	1	2	3	4	5	6	7	8	9	10
FI	—	—	—	—	—	—	—	—	—	—
FII	—	—	—	—	—	—	—	—	—	—
FIII	—	—	—	—	—	—	—	—	—	—

In the results obtained, there was no irritation to the volunteers, where in this test no side effects were seen in the form of redness of the skin, itching or swelling of the skin from all facial wash gel formulas. It can be stated that both formulas are safe to use.

**3.2 Hedonic Test.**

These results show that in terms of texture and softness, the FI palm shell activated charcoal facial wash gel was more favored by panelists can be obtained 50% compared to FII and FIII palm shell activated charcoal facial wash gel because the FI palm shell activated charcoal facial wash gel has softness. when applied to the face compared to facial wash gel, activated charcoal palm shell FII and FIII and after being applied to the face FI makes the skin softer, but which is able to brighten, reduce oil levels and increase excess water content, so this FI facial wash gel is highly preferred. by volunteers.

**3.3 Skin Moisture Test (moisture content and oil content).**

The results obtained in the emollient test conducted on 10 panelists in the category of women aged >25 years to 65 years showed that the facial wash gel activated charcoal palm shell FI had better moisture effectiveness, namely

14.70% than the positive control. and other formulas, this can be seen because FII has increased water content by 9.70% while FIII has increased by 11.30%

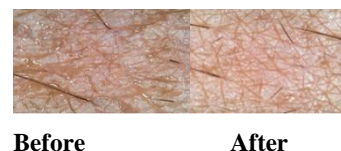
In examining the oil absorption for facial wash gel, activated charcoal palm shell FI has a better oil absorption effectiveness, which is 14.60% oil reduction compared to FII of 11.40% and FIII of 13.00%. Based on the above, the effectiveness of facial wash gel activated charcoal palm shell FI has advantages in terms of skin moisture / emollient and absorption to oil, this is due to the ability to absorb active charcoal activated charcoal FI palm shell by 2% and habatussaudah 1% better than FII and FIII

**3.4 Skin Brightness Test.**

Based on the results of the skin brightness test that can be seen visually, it can be concluded that the skin using the FI palm shell activated charcoal facial wash gel experienced a change from number 8 to no 2. Meanwhile, the skin using the FII and FIII palm shell activated charcoal facial wash gel only experienced changes from number 8 to number 4 and number 3.

**3.5 Test the Effectiveness of Facial Wash Gel in Microscopically Cleaning Dirt.**

From the results of microscopic skin examination using a digital microscope that was carried out before and after using facial wash gel, it resulted in data that the skin using FI palm shell activated charcoal facial wash gel was able to clean dirt from the face and was able to absorb excess oil. picture below:



**Figure 2. Facial skin that uses FI to absorb oil**



**Figure 3. Facial skin that uses FI to brighten the skin**

**4. CONCLUSION**

The data descriptively stated that the FI facial wash gel with a concentration of 2:1 palm shell activated charcoal and

Habatussaudah was safe to be used and effective as a natural detoxifier

#### **ACKNOWLEDGMENT**

Source of research funding by LP2M University Jambi with number of Contract 171/ UN 21.11/PT.01.05/SPK/2021

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