

State Defense Preparedness Efforts in Corona Virus Prevention, Pharmacy Study Program Undergraduate Program FK UPNVJ Contributes to Making Hand Sanitizer

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HumasUPNVJ- Based on the Circular Letter of the Minister of Education and Culture Number 3 of 2020 concerning *Prevention of Corona Virus Disease* (Covid-19) in Education Units, education units are instructed to ensure the availability of facilities for hand washing in various strategic locations in the Education unit. Failure to maintain hand hygiene is a major cause of infection and can result in the spread of multi-resistant microorganisms in the surrounding environment.

Maintaining hand hygiene by washing hands is the most practical and effective method of preventing infection. One of them is by using alcohol-based hand sanitizers to clean hands. The advantages of *hand sanitizers* can kill germs relatively quickly, because they contain alcoholic compounds (ethanol, propanol, isopropanol) with a concentration of \pm 60% to 80% and phenol groups (chlorhexidine, triclosan). The compounds contained in *hand sanitizers* have a working mechanism by denaturing and coagulating germ cell proteins.

As part of the state defense preparedness efforts in dealing with this, the Pharmacy Study Program Undergraduate Program (PSFPS) Faculty of Medicine, Jakarta Veterans National Development University feels it is important to contribute in making hand sanitizers as one of the precautionary measures for preventing and controlling Corona virus infection, both in the environment of the Jakarta Veterans National Development University in particular and the surrounding community in general.

Composition of *Hand Sanitizer* (HS)

No	Material	Function
1	96% alcohol	As an antiseptic
2	Carbopol	Gelling agent
3	Glycerin	humectants
4	Hydrogen peroxide 3%	As an antiseptic
5	<i>Triethanolamine</i>	pH regulator
6	<i>Lemon essential oil</i>	Fragrant and antibacterial
7	<i>Aquadest</i>	Solvent

Method of manufacture :

Carbopol was developed by sprinkling it on top of distilled water, then the ingredients were mixed using a homogenizer to form a gel base.

The gel base was then added to the glycerin and alcohol little by little and stirred until it was homogeneous and the alcohol was gone

Add 3% H₂O₂ and *Triethanolamine* into the gel and stir until homogeneous

Added to *essential oil lemon* gel and stir until homogeneous

The hand sanitizer formulation that we produce is in the form of a gel that has good spreading power and is clear and does not irritate the skin, because we use ingredients that are safe for the skin and the pH of the gel is adjusted to the skin's pH, which is 5.5-6. The pH of the preparation is one of the requirements for our HS gel, so that it does not cause skin irritation and makes the skin dry. As an antiseptic ingredient we use 80% alcohol and 0.13% H₂O₂, as well as additional natural ingredients, namely lemon essential oil, based on research it has antibacterial activity so it can be used as an antiseptic agent. However, we are still waiting for the results of laboratory tests to confirm its efficacy. Until now, only 50 bottles of HS @500ml have been completed and are still in the production process for the next HS.

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