ZAMIWARA MASK

(Zaitun, Peppermint, Bawang Putih Umbi Porang)

(Olives, Porang Tubers, Garlic and Peppermint)

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1 Background

(a) Reality

- Air pollution in the environment.
- Corona virus pandemic.

(b) Expectation

- A natural mask that breaks down easily and is safe to use.
- Reduce soil pollution.
- Prevent pathogens transmission.

2 Research Goals

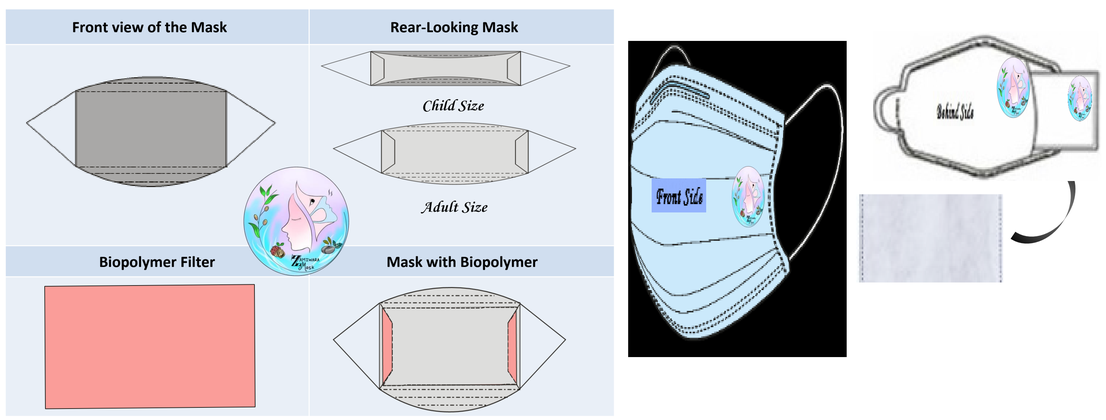
Creating an environmentally friendly Zamiwara mouth masks which is made from organic materials that can protect the body from pathogenic micro-organisms and air pollution.

3 Hypothesis

Zamiwara mouth masks made of organic materials can protect the body from pathogenic microorganisms and air pollution and are environmentally friendly.

4 Experimental Design

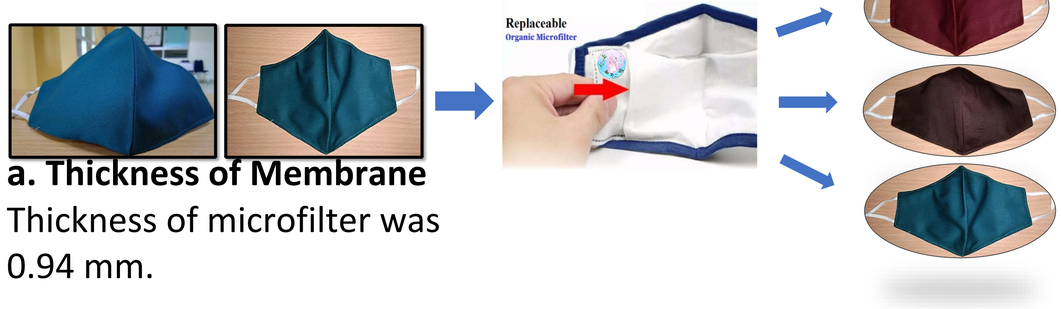
1. Purchasing and preparing the tools and materials.
2. Making filter paper from porang tubers.
3. Making biopolymer-based microfilter.
4. Testing and evaluating the product.
5. Testing and evaluating the product.
6. Zamiwara Mask created



Zamiwara masks with microfilter innovations which is then treated with the all-cellulose composite method until it has a pore size of about 2.5 micrometers and the price of one Zamiwara organic mask is IDR 3500.

Zamiwara Mask - Healthy, Eco care and Cheap.

5 Data and Discussion



a. Thickness of Membrane

Thickness of microfilter was 0.94 mm.

b. Membrane Diffusion

Diffusion coefficient was 8.74 x 10^{-5} cm^2/s with the gradient value 0.000264767, volume 0.207 dm^3, and initial concentration of 0.5 ml/L.

c. Membrane Characterization

The pores on the surface of membrane is 2.5 micro meters.

d. Existence of Microbes

Participants without masks had 20 colonies. Absence of microbes colonies of participants using masks

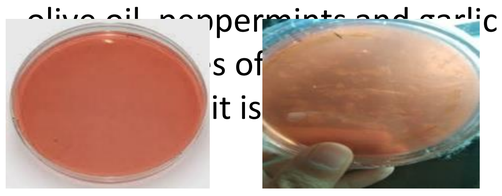
.e. Sense Test

- ***Colour***

  The panelists liked the variants of colors of the Zamiwara mouth mask that is created.

- ***Aroma***

  Therapeutic aroma derived from olive oil, peppermints and garlic



(a) panelist wearing the mask (b) panelist without the mask

Figure 1. Agar Media after Three Days

Figure 2. Microfilter Layer

- ***Dust Filter Capability***

  No dust was found attached to the inside of t

6 Conclusion and Recommendation

Zamiwara masks with microfilter innovations treated with the all-cellulose composite method with pore size of about 2.5 micrometers. The filter paper is integrated into the mask body as a disposable and biodegradable filter that can be replaced easily. Zamiwara mouth masks can be an alternative self-protection product from pathogen transmission and air pollution which is HEC (*Healthy, Eco Care and Cheap*). For the next researcher, the micro filter mask can be combined with other healthy components.

7 Future Work

We have planning to make a mask that can be recharged using a battery but still contains organic ingredients and safe for human body.

8 REFERENCES

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