

**INNOVATION OF NICOTINE AND CARBON
DIOXIDE (CO₂) ABSORBING MASK BASED ON
SIAM BAMBOO LEAVES EXTRACT (*Thyrsostachys
siamensis*) AND CROTON LEAVES (*Codiaeum
variegatum*)**



Arranged by:

Rafi Irsyad Saputra NIS : 181910448

Elisa Damayanti Putri NIS : 171810285

Guided by:

Titik Handayani, S. Si

Gempur Irawan Supena Putra, S. Si

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Author 1: Rafi Irsyad Saputra, Author 2 : Elisa Damayanti Putri

Supervisor 1: Titik Handayani, S. Si

Supervisor 2: Gempur Irawan Supena Putra, S. Si

ABSTRACT

The quality of air as an essential element for human life from day to day continues to decline. One of the causes of decreased air quality is cigarette smoke. Cigarette smoke contains harmful compounds such as carbon monoxide, nicotine, tar and eugenol. Which can lead to respiratory diseases such as pneumonia and tuberculosis (TB). Therefore people often overcome the bad exposure to pollution by wearing masks made of cotton layers. Masks made of layers can minimize air circulation, allowing the accumulation of carbon dioxide (CO₂) which can be inhaled again and cause CO₂ poisoning. In addition, cotton is dry for a long time when sweating, causing discomfort when wearing a mask and can become a nest for the growth of irritating microorganisms such as *Staphylococcus aureus* and *Candida albicans*. Based on these problems, an innovative mask filter was made that was able to absorb nicotine and carbon dioxide and had an anti-microorganism activity based on Siamese bamboo leaves (*Thyrsostachys siamensis*) and purging leaves (*Codiaeum variegatum*). The filter is combined with a cloth mask that can be inserted in the centre of the two-layer cloth mask made of spandex fabric which has sweat-absorbing properties, dries easily, and has good resistance to degradation by sweat. The best filter mask was made using composition of CMC:active charcoals 3:1 and siam bamboo leaf extract:croton leaf extract 2:1. The filter mask can absorb CO₂ with the best absorption on filter mask that mold on spandex and with one spandex layer as treatment. The filter mask also absorb nicotine with best result on treatment without more spandex layer. The mask filter is made in the form of a combination of spandex cloth with a mixture of CMC, croton leaves extract, bamboo leaves extract, and activated charcoal. The filter that has been made is tested for sterility using the swab method, then tested for its mechanics, and its absorption of nicotine and carbon dioxide. By making this mask, it is hoped that it can be used to absorb nicotine and carbon dioxide and can inhibit the growth of microorganisms so that the use of masks is safer and more comfortable.

Key Words: siam bamboo, filter mask, anti mikroorganisme, nicotine and carbon dioxide absorbtion, puring