

WIU CENTENNIAL HONORS COLLEGE
Thomas E. Helm Undergraduate Research Day 2022

Abstract

Poster

Major Biology

Faculty Mentor: Kai Tsai

The Development of a Biodegradable Mask

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Throughout the pandemic, there has been increased use of disposable masks, which has increased mask pollution. The goal of this project was to create a mask at a low cost, using biodegradable materials that effectively prevent the spread of the Covid-19 virus. We designed three masks made of different materials including kraft paper, rice paper, and kelp. The masks were tested for effectiveness in the prevention of the spread of airborne particles and for comfort. We determined the effectiveness by testing if the wearer could blow out a candle. We tested for comfort by asking subjects to wear the mask for an hour and by having them wear it while walking up and down stairs to determine if it obstructed airflow. All three masks were effective in the candle test. All three masks also were comfortable when wearing them while climbing stairs, however, only the kraft and rice paper masks were comfortable while wearing for an hour. The kraft paper mask, rice paper mask, and kelp mask cost \$0.27, \$0.51, and \$1.13, respectively. Overall, the kraft paper mask is the best solution to our initial problem.