

Durable and Reusable Face Mask for the Fight against the Airborne Diseases

Bacteria that cause airborne infections are most frequently spread by tiny respiratory droplets. When a person with the airborne illness sneezes, coughs, laughs, or exhales in any other way, these droplets are released. Keeping this need in mind, durable and re-washable antimicrobial cotton fabric was prepared for making a cloth mask by using *Azadirachata indica*, *Butea monosperma* and *Litchi chinensis* tree leaves. The cotton is the most suitable and comfortable fabric for making a cloth mask, and secondly, this cloth mask is washable up to 25 times in the home laundry. The antimicrobial finish was fixed on cotton fabric by use of poly urethane binder and the treatment was applied by use of pad dry cure machine. The antimicrobial activity of treated and untreated cotton fabric and durability to successive washes was assessed by using of ASTM E2149 shake flask method. FTIR and SEM test was used to observe the presence of antimicrobial finish on fabric. The fabric treated with *A.indica* showed 80%, *B.monosperma* showed 100% and *L. chinensis* showed 100% reduction against microorganisms when washed up to 25 times in the home laundry. These findings indicate that this fabric can be used in making reusable cloth face masks which can serve against the airborne diseases as well be used in protective clothing for health care workers.