

WASTE TO FUNCTIONAL MATERIALS: MASKER *SUPERHYDROPHOBIC*, ANTI BAKTERI DAN PROTEKSI SINAR UV

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ABSTRAK

Katun yang banyak digunakan di industri tekstil karena nyaman digunakan dilakukan modifikasi kain katun dengan penambahan ZnO dan *polystyrene* untuk menjadikan kain katun dengan sifat *superhydrophobic*, anti bakteri dan proteksi sinar UV. Percobaan bertujuan untuk mengetahui pengaruh kondisi sintesa terhadap kualitas ZnO dan *polystyrene* yang menempel di kain katun, mengetahui pengaruh kondisi *coating polystyrene* terhadap kualitas *polystyrene* yang menempel, mengetahui pengaruh penambahan ZnO pada kain terhadap sifat anti bakteri dan mengetahui pengaruh *coating polystyrene* terhadap sifat anti air kain katun. Diperoleh hasil dari penelitian ini berupa kain katun *superhydrophobic*, bahwa permukaan kain katun variabel 0,5% dengan 1 menit dan 7 kali *dip coating* terdapat kekasaran mikroskopis karena sintesis material *polystyrene* dan ZnO. Pada kain katun variabel 0,5% dengan 1 menit dan 7 kali *dip coating* memberikan sifat yang anti air, permukaan kain katun yang tidak kasar dan memberikan sifat seperti kain katun pada umumnya. Kain katun murni dan kain katun dengan ZnO variabel 0,5% 1 menit dan 7 kali *dip coating* tidak menunjukkan adanya bakteri yang terkandung didalamnya. Semakin lama *coating* dan semakin banyak pengulangan *dip coating* maka *contact angle* juga akan semakin naik.

Kata Kunci : anti bakteri, *polystyrene*, penambahan ZnO, superhidrofobik

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ABSTRACT

Cotton, which is widely used in the textile industry because it is comfortable to use, is modified by the addition of ZnO and polystyrene to make cotton fabrics with superhydrophobic, anti-bacterial and UV protection properties. The experiment aims to determine the effect of synthetic conditions on the quality of ZnO and polystyrene attached to cotton fabrics, to determine the effect of polystyrene coating conditions on the quality of adhered polystyrene, to determine the effect of adding ZnO to anti-bacterial properties and to determine the effect of polystyrene coating on the waterproof properties of cotton fabrics. . The results of this study were in the form of a superhydrophobic cotton cloth, that the surface of the variable 0.5% cotton cloth with 1 minute and 7 times the dip coating had microscopic roughness due to the synthesis of polystyrene and ZnO materials. In the 0.5% variable cotton fabric with 1 minute and 7 times the dip coating gives water repellent properties, the surface of the cotton fabric is not rough and gives it properties like cotton fabrics in general. Pure cotton cloth and cotton cloth with variable ZnO 0.5% 1 minute and 7 times dip coating did not show any bacteria contained therein. The longer the coating and the more repetitions of the dip coating, the contact angle will also increase.

Key words: anti-bacterial, addition of ZnO, polystyrene waste, superhydrophobic