

Abstract

Consumers purchasing textiles usually feel fabrics for its tactile properties indicating that they are interested in comfort properties rather than other properties. During daily activities, low-stress mechanical action like bending, shear, compression, tensile, and hysteresis occurs on clothing. These high sensitive low-stress mechanical properties have influence on movement comfort of the body. This study reports effect of cotton yarn parameters on tactile comfort and low-stress mechanical properties of four knitted fabrics. These fabrics were developed with cotton yarn having different yarn counts; twist, coefficient of mass variation, neps, hairiness, thin and thick places, and strength and elongation. Half-bleach treatment was carried out on the knitted fabrics and the effect of yarn parameters plus their correlation on tactile comfort and low-stress mechanical properties were evaluated. Results statistically analyzed showed that coefficient of friction, surface roughness, tensile, bending, shear, and compression of knitted fabrics were affected by yarn count. However, in wales direction, tensile resilience (RT%) of knitted fabrics had insignificant change with an F -value of 1.110 and p -value of .248. A correlation was also found between fabric smoothness and yarn count at adj. $R^2 = 83.1\%$. A relationship between yarn parameters and tactile comfort properties was also modeled using equations.