

## **The effect of blending industrial hemp as an Eco-friendly material with cotton to produce jeans clothes**

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### **Abstract**

This research aims to study the effect of using industrial hemp (*Cannabis sativa*) as an Eco-friendly material in jeans fabric, as it the most popular and preferred fabric for many men, women and children, Attention to environmental protection is the reason for the interest in these fibers, Industrial hemp (*Cannabis sativa*) is one of bast fibers with a high content of cellulose. Attention to environmental protection is the reason for the interest in these fibers it is almost a challenge for cotton fabrics in some properties and advantages.

In this study, five samples of jeans fabric were produced with different blending ratios for the raw materials used in each of warp (100% cotton, 70% cotton:30% hemp) and weft(98% cotton :2% spandex, 48% cotton :2% spandex:50% hemp, 68% cotton :2% spandex:30% hemp), with weave structures(twill 3/1z) ,Tests were done to the produced samples (tensile strength tear strength , stiffness , Fabric Weight ,growth, Spray test (wettability) and Air permeability), The result of the research showed that increasing the percentage of hemp improves the tensile strength, tear strength and air permeability of the samples produced, in addition reducing weight and increasing the stiffness of the fabric Three different clothing products were implemented from sample no. (5) With blending ratios (70% cotton: 30% hemp in the warp // 48% cotton: 2% spandex: 50% hemp in the weft) due to the results of the tests, which showed the suitability of the sample properties and the availability of its comfort properties and its superiority over the cotton material in some properties when blending industrial hemp with cotton.

### **Key words**

Hemp fibers- spandex - Denim Fabric -Cotton