Improving Functional Performance of Kitchens Towels by using Modal fibers

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ABSTRACT

Towel fabrics are more common in household use, and are used in other places such as hotels, swimming pools and Ihram clothes. Their production is considered one of the most important economic development, and it is divided into groups according to the uses such as bath towels, hand towels, face towels, sea towels, kitchen towels, Dish Towels and Glass Cloth.

One of the basic requirements that must be characterized by the towels are absorption, softness of clothing , friction , withstand the stresses of the laundry , stability of color , speed of drought , light weight and the problems used are (overweight after absorption of water and need a long time to dry).

Modal fiber is very suitable for water absorption and dehydration quickly to be comfortable in use, and is characterized as soft , comfortable, very strong when it is wet or dry , light weight , retain the soft touch after repeated washing , luster, has high permeability to the air ,and when compared to cotton growth rate of bacteria Less .

Increasing interest in the use of the latter, And improve the efficiency of the performance of these fabrics in use of the most blended ratios, textile structures, in order to reach them to the highest levels of quality that achieve their effectiveness.

The aim of the Study is improving functional performance of kitchens towels by using modal fibers by reaching the best structure, the blended ratios of Modal. The production ten samples with two textile structures (Honeycomb and Mock Leon woven), and five blended ratios (All weft cotton , 3 weft cotton :1 weft Modal, 1 weft cotton :1 weft Modal , 1 weft cotton :3 weft Modal , All weft Modal), and used Modal count 30/1 , The different tests were carried out on the fabrics producing air permeability , thickness test, weight , tensile strength, elongation and Stiffness in both directions, shrinkage in the width of the woven and Moisture absorption, and most of the samples have achieved the required results.

Keywords: Modal - blended ratios - Honeycomb – Mock Leon woven - kitchen towels

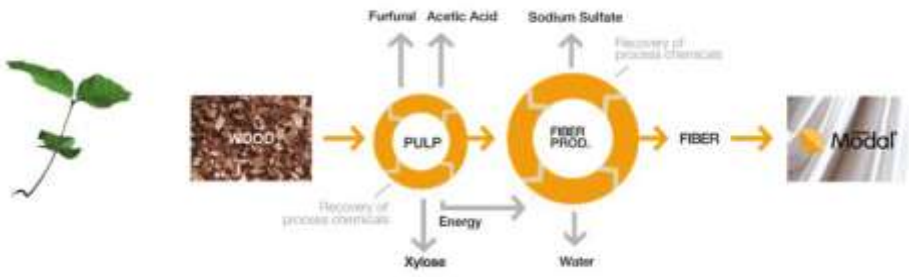

Figure: Steps to get the material of the modal

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Research problem:

- Utilization of the material of the modal in the manufacture of kitchen towels, despite the availability of characteristics of a distinctive material and suitable for the performance of the job.
- The need to improve the functionality of kitchen towel fabrics to improve the functional properties to suit the end use.

Therefore, interest in research that seeks to find scientific and practical solutions is crucial to participate in the design and production of this type of fabrics

Research importance

The research contributes to opening new horizons for the use of modal materials in towel fabrics and its effect on the required performance properties.

Search aim

- Domestic production of kitchen towels used economically.
- Analytical study to improve the functional performance of the kitchen towel fabrics using the material of the modal through the access to the best fabric composition and the best mixing ratio of the material of the modal.

Research hypotheses

Structural constructor (the difference in the mixing ratios of weave - textile structure) improves the functional performance of the fabrics produced.

Research Methodology:

The research follows the analytical experimental method.

MATERIAL AND METHOD

FABRICS

The samples were produced by using the Modal of 30/1 cotton, with different mixing ratios with cotton 30/1 cotton (All weft cotton , 3 weft cotton :1 weft Modal, 1 weft cotton :1 weft Modal , 1 weft cotton :3 weft Modal , All weft Modal).

METHOD OF CONSTRUCTION

- The samples were produced using two textile structures using (Honeycomb – Mock Leon woven).

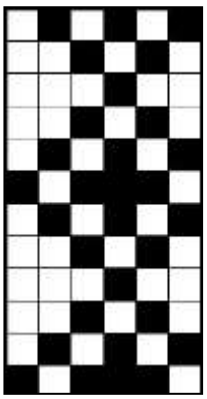


Fig: Mock Leon woven

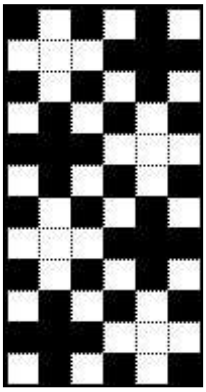
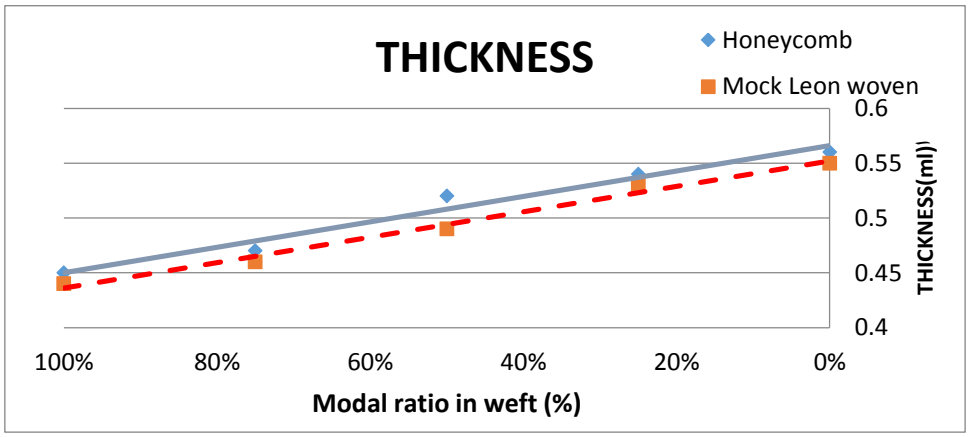
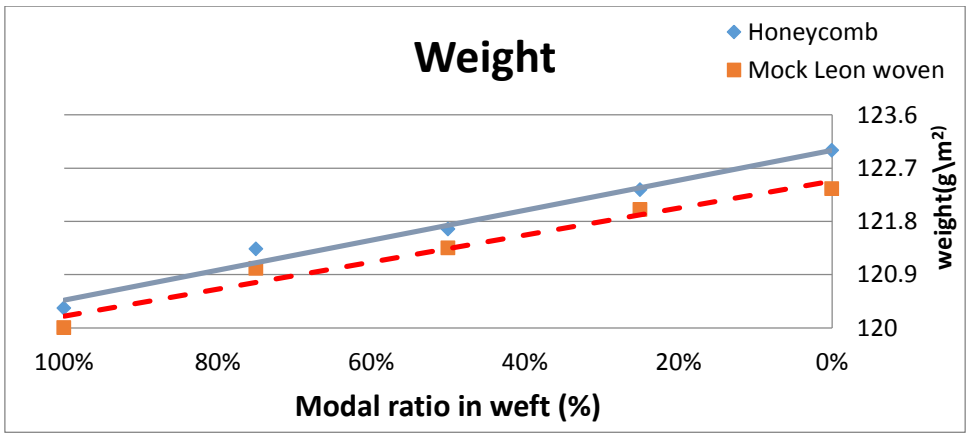


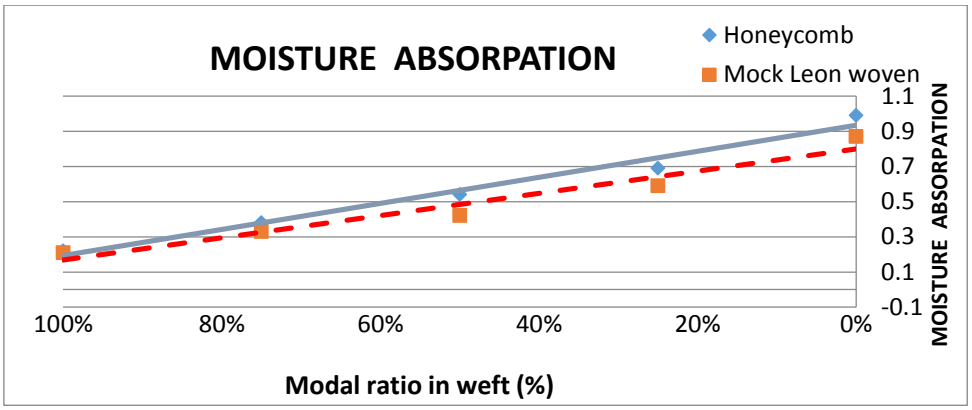
Fig: Honeycomb

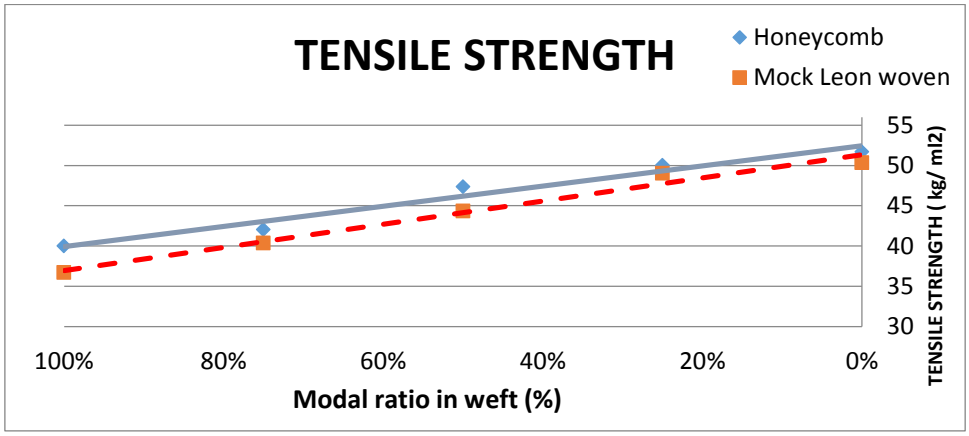
MEASUREMENTS

1- THICKNESS TEST
2- FABRIC WEIGHT TEST
3- TENSILE STRENGTH TEST
4- ELONGATION TEST
5- STIFFNESS TEST
6- MOISTURE ABSORPATION TEST









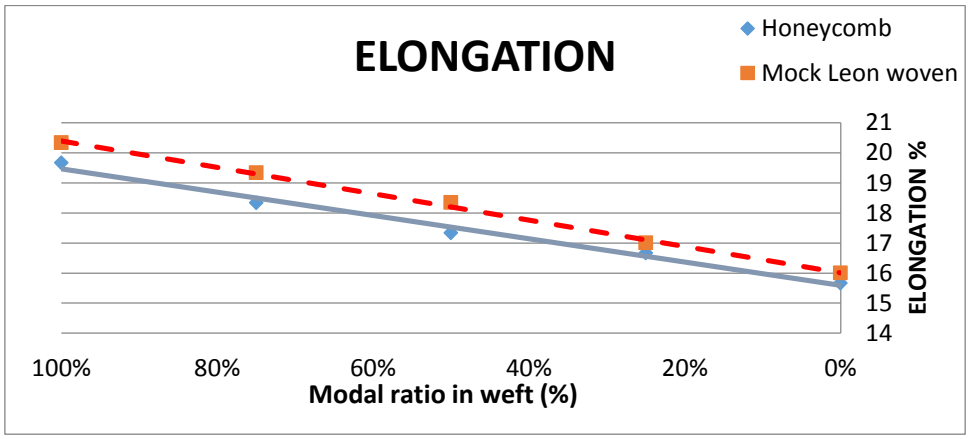


Figure: Results through statistical forms

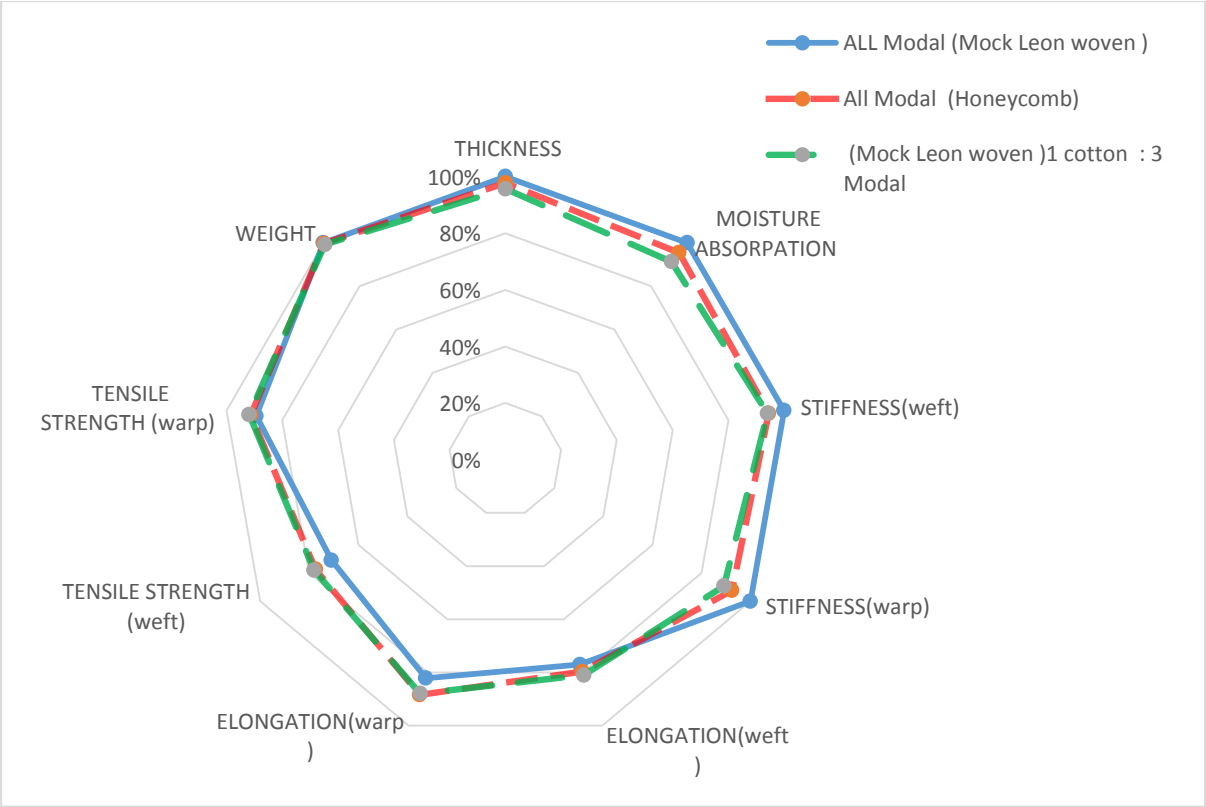


Figure: Three samples of better quality

CONCLUSIONS

-There is an inverse relationship between the Thickness test and the mixing ratio of the Modal in weft with the weight. The higher the mixing ratio, the less the thickness due to the density of the quality of the Moles. The density of 1.52-1.54 g / cm3, the cotton size is 1.54-1.56 kg / cm3 and the textile Structure the Honeycomb is the highest thickness followed by the Mock Leon woven.

- The opposite is true of the strength of the tensile strength, and the mixing ratio of the modal. The higher the mixing ratio, the less the tensile strength.

-There is a positive relationship between the elongation and the mixing ratio of the modal with the weft . The higher the modal ratios, the longer the elongation.

-The higher the mixing of Modal with the weft, the less absorption time and thus the greater the absorption due to the interstitial spaces of the Mock Leon woven

Than the Honeycomb. The absorption in the modal material is higher than the cotton. This makes the modal fast absorbing due to the cross section containing small spaces.

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