Physical and microscopic characteristics of fibres obtained from crossbred (Hampshire X Ghungroo) pigs

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Abstract

Pig hair or bristle is one of the economically important by-products of pig farming obtained at the time of slaughter having multiple industrial and domestic utilities. The present study was conducted to document tensile and microscopic properties of the fibres obtained from crossbred (Hampshire X Ghungroo) pigs. The mean density of fibres in the neck and back region was 15.61 and 12.08 per cm^2 respectively. The fibres grew at an average rate of 0.165mm/day and had a mean tensile strength of 15.81±0.65 cN/tex. The average extensibility and the work of rupture of the pig hair fibre were 35.00±0.73% and 0.052±0.003J/m/tex respectively. The average thickness of the fibres in the mid-shaft and root region was 267.89±8.10 and 319.19±6.49µm respectively. Microscopically, three distinct regions (cuticle, medulla and cortex) could be recognized. The cortex region comprised of 85.64% of the thickness of mid-shaft region of the fibres studied. Certain variations in the microscopic properties of the fibres obtained from different body regions could be observed even though some of them were insignificant. However, most of the tensile properties of the fibres obtained from different body regions were similar (insignificant, $P<0.05$). In general, the physical and tensile properties of the fibres were similar to other natural fibres of animal origin and the results suggest that these fibres can find use in the manufacture of diverse, environment friendly products.

Keywords: Pig, hair, bristle, tensile property, microscopy

In India pig rearing provides livelihood support for socially and economically weaker sections of the society. The pig population of India is about 11.11 million with more than 40% of the animals reared in the North Eastern region of the country (DAHD 2012). The hair or bristle fibres are one of the by-products of pig farming, generally obtained at the time of slaughter. Considering, the substantial economic value of the fibres from thousands of pigs

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