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Computerized technology for evaluation of quality of Jute Fibres

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Tute is a bastfibre and is obtained from the stems of the two cultivated species of the genus Corchorus, viz., C. capsularis and C. olitorius, of the Tiliaceae family. C. capsularis is commonly called white jute and C. olitorius is commonly called tossa jute, though the two species from which the jute fibre is obtained are similar in general appearance. Jute ranks next to cotton as the most important natural fibre in products on besides its high tensile strength, low extensibility, high frictional resistance, etc. It is easily renewable, biodegradable and eco-friendly. India contributes about 65% of world production of jute fibre. In the earliest grading system 'Place of origin' was the basic guideline for grading of jute fibre. The grades had also link with commercial classification in accordance with the place of origin of the fibre, such as, Selected Assam, Ordinary Assam, Assam Bottom, Murshidabad Middle, Nadia Top etc. It was very disadvantageous and inconvenient for the growers to follow such a system of grading. As a result, a cultivator was unable to find out the quality of his produce. So the previous grading system was obviously very unscientific and arbitrary and acted against the interest of the growers. To remove that defective procedure, ISI now BIS introduced eight grade grading system based on six quality parameters i.e., strength, fineness, colour, root content, defects and density. Different score marks are assigned to each character according to the level of these characters. The score marks for different characters, however, vary from one grade to another according to the gradations of characters. This grading system is found to be more acceptable and helpful to jute growers. The quality of jute fibre (Corchoruscapsularis and Corchorusolitorius) is usually judged by its suitability for the production of different types of yarns and its behavior in the manufacturing process. The BIS grading of jute envisages a scorecard system of grading that aims at eliminating personal bias as far as practicable. The six physical parameters viz., strength, fineness, colour, root content, defects and density of jute fibres are assessed for sorting out the fibre into eight different grades. Relative weightage is given to each physical parameter by standard scoring system and the grade of fibre is determined by total score of the six parameters.

Existing Grading system. There are two systems for grading of jute

- Hand & Eye Method
- Instrumental Method

But these methods have got limitations. To eliminate these limitations, this new attempt has been made as the crying need of today. Using this proposed integrated method of grading the growers will not be deprived of right price of their produce, thereby will improve their life style and economic well-being. In the areas of fibre grading, the following testing and measuring are of immense importance. These are:

• To measure the colour of the fibre

• To measure the defects like knots, runner, dazed fibre, over retted fibre, mossy fibre and enlarged sticks, loose leaf, loose sticks, gummy fibres, specks and weak croppies and other minor defects of the jute and allied fibres.

- To measure the fineness of the fibre
- To measure the density
- To measure the strength of fibre in gf/tex

The present paper deals with a new and novel method of finding the grading parameters using image sensing and processing system to find the thecolour, defects and the fineness of the fibre.

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