

Geothermal retting of dried jute plants

A novel approach



Retting of jute plant is the most important post-harvest operation that governs the quality of the fibre and thereby the net return from jute cultivation. Timely availability of quality water and the retting techniques followed determines the fibre quality. The usual retting period varies from 18 to 25 days depending on the age of the plant, the quality of retting water and prevailing water temperature, etc. In conventional process at least 1-1.5 m quality water is a pre-requisite for better retting. Scarcity of quality water due to erratic and scanty rainfall is a reality that often compels late harvesting, drying of standing crops (till now used as fuel only) and improper retting in muddy water of closed water bodies. Due to this reason the major quantity of jute fibre produced in India are of inferior marketable grade.

At Central Research Institute for Jute and Allied Fibres (ICAR), Barrackpore, an empirical attempt has been

made to extract quality fibre in a short period under saturated soil condition from stacked and dried jute plants through geothermal retting. During the process old (150 DAS) and dried (6 months approx.) jute plants were cut into pieces of 30-35 cm length and then 10-15 pieces were tied together to form a bundle. The bundles were kept on a shallow trench of 10-15 cm depth and covered with black films. The jute bundles were embedded on a thin layer of green grasses. After retting, fibres were separated from sticks, washed in clean water and sun-dried. The strength of the fibre was measured following standard procedure.

After 8 days it was found that the plants retted evenly. Geothermal retting increased fibre recovery by 4 per cent over conventional retting. The fibre: stick ratio was 1:2.47 which is remarkably better over the conventional retting (1:

3.02). It was also observed that the fibres were free of gums. Conventional retting produces defective fibres by the presence of gums, barks, etc. in the reed, especially at the bottom region. This happens in case of over matured or water logged jute plants and due to improper retting. This method also eliminated the hard barkly bottoms that give rise to poor grade rooty fibre. The strength of the fibre was 20.40 g/tex. The mechanism of action required detailed confirmation but it has given a new dimension in retting technology, which was long due.

It is expected that fresh jute, mesta (*Hibiscus* spp.), flax (*Linum usitatissimum* Linn.) can be retted following this method within a few days. This method will check the loss of high amount of nutrient generated from residues after retting.



This technology generates undiluted quality fibre from a genotype. Geothermal retting is easy, cheap, hustle-free, eco-friendly and effectively solves the problem long due. This new retting technique opened up new vistas for cultivation and research of jute and allied fibre crops [Ghorai & Chakraborty, *SAIC Newsletter*, 2002, 12(3), 6, 10].