Ribbon Retting of Jute: A Prospective Method for Improvement of Fibre Quality

R.K. Naik[1], B. Majumdar[2], S.P. Mazumdar[3] and M.R. Naik[4]

[1,2,3,4]Central Research Institute for Jute and Allied Fibres, Barrackpore, Kolkata-700120 (WB)
E-mail: [1]ranjanagrieng@rediffmail.com

Abstract—*Jute is an important cash crop mainly grown in eastern part of India. The quality fibre obtained from jute is largely depends on the post-harvest processing method i.e. retting. Retting is a biological process to separate the fibre from woody stem without damaging the fibre cellulose by combined action of water and aquatic microorganisms i.e. bacteria. Conventional retting for jute fibre extraction is labour intensive, time consuming and requires large volume of water. Whereas, the ribbon retting reduces time of retting and involves less volume of water. Scarcity of jute retting water in some parts of jute growing areas is one of the major issues. The present study relates to mechanical extraction of ribbon from jute plants with help of machine followed by retting of ribbon i.e. mechano-microbial retting or ribbon retting. Three machines were used to extract green ribbon from freshly harvested jute plants and found that, jute decorticator (powered by 5 hp electric motor) was handling more plants (230 kg plants/h) per unit time than other machines. The ribbons obtained from machines were retted in different retting conditions i.e. polythene lined soil pit, cemented tank, normal and using microbial culture (CRIJAF Sona), vertical and horizontal steeping. The average retting duration using microbial culture was reduced 5-6 days from normal retting. The maximum dry fibre recovery of 6.65 % was obtained from bast fibre extractor. The maximum fibre strength of 25.83 g/ tex was obtained with manual jute extractor and it was 13-15 % more than the fibre strength from other machines. The fibre obtained using microbial culture was found to be 15% more strength than normal retting. Fibres from vertically retted ribbon were having 6.5% less strength than horizontal retted ribbons, which may be due to improper retting. The average fibre fineness of 2.77 tex was obtained with ribbon retting. The ribbon retted jute fibres are absolutely free from bark. More micronutrients and microbes were found in the water added with microbial culture. So, ribbon retting is a great promise to produce high quality jute fibre in one hand and a more eco-friendly measure on the other.*

Keywords*: Extractor, fibre, jute, retting, ribbon.*