

**IDENTIFICATION OF RETTING ENHANCING
MICROBIAL STRAINS IN COCONUT**

HUSKS RETTING

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ABSTRACT

Coir fibre is extracted from coconut (*Cocos nucifera* L.) husk. Natural retting process needs at least 3 months period for obtaining good quality bristle fibre. This study was carried out to reduce the retting time by introducing previously identified pectin and cellulose the degrading microbial strains from bio chemical tests. For this experiment, coconut variety of CRIC60 from Bandirippuwa estate in Lunuwila was used. Retting experiments were carried out using five different combinations of microbes namely, *staphylococcus sciuri*, *serratia rubidea*, *bacillus safensis* and *bacillus thuringiensis*. The control was water. The experiment was carried out two months. The coconut husk samples were collected by two weeks intervals and Ceylon drum machine was used for the fibre extraction. The percentages of bristle fibre and its qualities were analysed. The ret liquor samples were also analysed to determine the pH and Electrical Conductivity. The tensile strength ($118.39 \pm 1.9 \text{ N mm}^{-2}$) breaking load ($3.27 \pm 0.36 \text{ N}$), average length ($127.11 \pm 2.39 \text{ mm}$) and fineness ($27.26 \pm 3.33 \text{ g km}^{-1}$) of initial samples were found to be increased to $145.48 \pm 3.97 \text{ N mm}^{-2}$, $4.35 \pm 0.28 \text{ N}$, $152.01 \pm 2.52 \text{ mm}$, and $57.29 \pm 1.31 \text{ g km}^{-1}$, respectively with the treatment of coconut husk with *staphylococcus sciuri*, *serratia rubidea*, *bacillus safensis* and *bacillus thuringiensis* mixture for 4 to 8 weeks. Further impurities (%) were reduced from 3.07 ± 0.25 to 1.06 ± 0.20 with these treatments. These values were satisfied with SLS Standards. Fibre percentage and the quality of ret liquor indicate by pH and Electrical Conductivity were also increased. Good quality bristle fibre can be obtained from coconut husks by treating with *staphylococcus sciuri*, *serratia rubidea*, *bacillus safensis* and *bacillus thuringiensis* mixture for 4 to 8 weeks.

Key words: coconut fibre, Retting, *staphylococcus sciuri*, *serratia rubidea*, *bacillus spp.*