

D-73 Studies on microflora associated with coconut husk retting and coir dust

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The extraction of coir fibres from coconut husk is still carried out as a low scale industry or as a cottage industry by using traditional methods. In this time consuming traditional method, retting is the only biological process.

The aim of this study, is to investigate the bacteria together with the physio-chemical parameters of the retting environment and in the coir dust.

Samples of both coir dust and retted liquor were collected from Kurunegala area where coir dust is been directly used to prepare briquettes. Samples of retted liquor and coir dust, collected at regular intervals were subjected to dilution plate technique with different media to isolate bacteria. The morphological and standard biochemical tests were performed to identify these isolated micro-organisms. Physical parameters such as temperature, pH, polyphenolic content, biological oxygen demand, chemical oxygen demand and dissolved oxygen were measured according to the standard methods. Sampling was carried out approximately at 2 weeks intervals for a period of 5 months.

The results indicated that the retting always takes place under acidic conditions (pH 4 - 6) where the temperature was between 26 - 28° C.

Release of ions by the cells in the coconut husk during the retting process, contributes to an increase in electric conductivity (6810 - 8357 us) and redox potential (121 - 284 mv) of the retted liquor. These factors invariably facilitate the selective growth of micro-organisms in the retted liquor. *Bacillus* spp, *Pseudomonas* sp and *Micrococcus* spp. were found to be the dominant bacteria in the retted liquor while *Alcaligenes* sp. and *Bacillus* spp. were dominant in the coir dust. The presence of *Alcaligenes* sp., *Pseudomonas* spp *Micrococcus* sp., *Corynebacterium* sp., and *Bacillus* spp., were common to both retted liquor and coir dust, while *E. coli*, *Chromobacterium violaceum*, *Serratia liquefaciens*, and *Kurthia* sp. were only found in retted liquor.
