

Biotechnical Retting of Natural Fibers to High Added Value Products

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ABSTRACT

The value of the natural fiber is based almost entirely on its quality, and the quality depends on the degree of retting. In case of textile applications, fully elementarised fibers of high fineness are necessary to produce fine yarns of high value. For technical applications like biocomposites the high tenacity of the fiber must be preserved.

The extraction of natural fibers for industrial use is a microbial process that separates fibers from stems. Good quality natural fiber raw material and the use of well characterized microbial enzymes have an essential role in order to achieve good quality natural fibers at industrial scale. A satisfactory batch-wise enzymatic retting process must be simple, fast, cheap reproducible and easily adaptable to existing equipment.

AFC Bioprocess fulfils these criteria. AFC Bioprocess will shorten the retting time to a fraction compared to the time needed in conventional processes. Retting time can be adjusted depending on the type of processed fibers and the quality of fibers needed in different technical end product applications. Retting liquor used in AFC Bioprocess consists of selected pattern of industrial pectinase enzymes either commercial or produced at AFC. AFC Bioprocess is easily expanded and enables production automation having low operational costs. The whole process is closed, minimizing unwanted microbial effects. It is also easily controlled (pH, temperature, oxygen, organic acids, enzymatic activities, etc.).

AFC Bioprocess has many environmental advantages; closed process, recirculation and regeneration of retting liquor and no chemicals are used in the process.

AFC Bioprocess produces uniform quality fibers economically for high added value products. It is tailored according to required end product. It is suitable for all natural fibers .