

Reducing industrial waste from sugarcane processing in India

Task Objectives

Jesmond Engineering partnered up with the [BDC](#), [Prozomix Ltd](#), [Wilson bio-chemical Ltd](#) and the [University of York](#) on a UK Research and Innovation funded project to tackle pollution that is caused by the production of sugarcane in India.

Jesmond Engineering was tasked with designing of novel process equipment/machines for the conversion of sugarcane waste to citric acid. Jesmond Engineering was also responsible for performing CFD on vessels to determine the optimal design for mixing solids, pseudo-solids and liquids.

Our work is compatible with four of the UN sustainability goals

1. Clean Water and Sanitation- our work will help improve water quality for populations near sugarcane plants.
2. Decent Work and Economic Growth- our work can underpin increased economic production from sugarcane processing leading to new jobs and improved incomes in rural area.
3. Industry Innovation and Infrastructure- by developing new industrial biotechnological industries we will help strengthen economic growth in India.
4. Life below water- by reducing harmful emissions of waste-water we will improve aquatic ecosystems in waterways associated with sugar mills in India.

Project Overview

There are significant issues in India with regard to the pollution of waterways from effluents from sugar processing plants. Sugarcane processing produces notable levels of industrial waste due to inefficiencies in capturing full value from the biological components of the raw material. In particular, large amounts of woody biomass residues accumulate and enter water effluents from processing plants, causing significant pollution of waterways.

We have developed innovative biotechnological approaches to generating new value to sugarcane processing, while simultaneously minimising waste from process plants. We have converted the polluting components from waste streams into sugars that can be fermented to make citric acid which could be sold into various commercial markets. By doing this, we aim to reduce the pollution from sugarcane processing, providing cleaner water and a cleaner environment. By creating valuable new products out of sugarcane waste, we aim to increase industrial productivity and create job opportunities in the production of citric acid. These changes will lead to improved environmental impacts, increased profitability and new job creation both directly and indirectly.

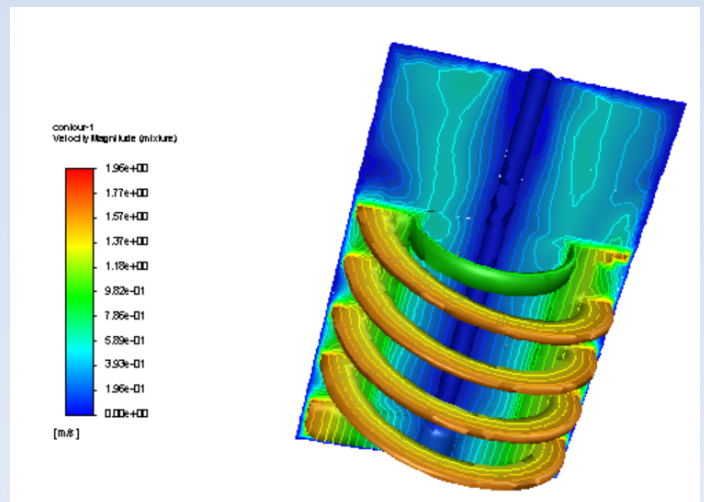


Figure 1 Block Flow Diagram of Section 1