A Cross Flow Flexible Membrane Filtration Assembly for Low Volume Food and Biotech Processing

Technology Description

The invention is a small scale cross flow membrane separation assembly which can be used for the optimization of different kind of membrane separation processes. This device can accommodate different molecular weight cut-off membranes (Microfiltration, Ultrafiltration & Nanofiltration) and can be operated with a very low process volume.

Name Of institute:
Indian Institute of Technology Delhi, New Delhi
Stage of development:
Ready for commercialization
Patent status: Filed

Scientific Experts:
Prof. Gopal P. Agarwal

Background

Present technology has been created to solve the problem of availability of small scale/ laboratory scale filtration system which can be used for the pressure driven membrane separation processes 1)This kind of systems are not available in India 2) This system can accommodate different kind of membranes with different molecular weight cut-off 3) It requires very less sample process volume and so

Benefits / Utility

The primary application will be biotech, food and pharmaceutical industry for R& D and academic and research centres for laboratory scale feasibility test for various membrane based separation processes

Country Context

India

Scalability

The novelty of the device is in the small scale of it's operation. Scale of production will be decided by its demand in the market.

Business and Commercial Potential

Business Potential: The basic scope of the Invention is for research & development (R & D) for membrane based separation, which may be required by the food & dairy, biotech, pharmaceutical Industries, departments of science and engineering Institutes/Universities. Expected requirement of these units per year would be 50 - 100. Market potential: As we know such kind of systems are not available in India so we are currently importing them at higher cost thus

Potential investors to this technical innovation

Any industry which fabricates such systems and also any membrane manufacturers might be potential investor.

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Financials

VALUE OF THE TECHNOLOGY: Project cost Innovating team / organization's margin 15%= Rs 75,000 per unit Revenue to be generated by tech commercialization= Rs 250,00,000/- per year Tech commercialization fee to be charged from one licensee= Rs 20,00,000/-
Financial Required: Fix assets (Land and Building) (i) Space for the office setup around 1600 square feet (ii) Space for the workshop would be 2400 square feet Machinery = Rs. 120 lakhs Others= Rs. 42.00 lakhs Pre-operative expenses : Rs. 21.30 lakhs Cost: Rs. 50 lakhs

Target Market / Customer

Potential Clients: R & D division of Food and Dairy, Biotech & Pharmaceutical Industries for high value products, Other Industries like distillery, pulp & paper, textile, leather etc for water treatment and recycle, product recovery. Academic departments: Chemical Engineering, Biotechnology, Environmental Engineering, Textile

Limiting factors for large scale commercialization

Less number of membrane manufacturers in India Unavailability of good quality membranes Less variety of membrane modules High cost of membranes

Social impact of the technology

This technology provides less energy intensive and environmental friendly separation solution to the industries. Thus contributing to “Green Technology”.

Any other relevant information

The Invention may be used in treatment of effluents from many industries generating high BOD & COD.