A Novel Micro Technique & Media for Selective Enumeration and Detection of *Enterococci* in Milk"

Technology Description

The technology involves application of specific Marker enzyme which participates in unique biochemical pathways of specific genera or strain hydrolyze chromogenic substrate complex Release free chromogen which can be detected visually by colour change The development of this new "Single Stage Micro Technique" is to facilitate its use in R &D institutions and dairy industry for rapid detection of ***Enterococci.*** The medium is highly selective for ***Enterococci*** and allow its detection in single working day. Technology has the potential to replace the existing medium for

Name Of institute:
NDRI, Karnal
Stage of development:
Ready for commercialization
Patent status: Filed

Scientific Experts:
Dr. Naresh Kumar,

Background

Enterococci are monitored as hygiene indicator in dairy plants using conventional methods employing a number of selective agents, incubation conditions, and combinations which are time-consuming and inconvenient to carry out in the laboratory. Its regulatory standards have been fixed for infant milk substitutes whose consumers include highly vulnerable group of society i.e., Infants. Commercially available media like citrate azide agar requires an incubation period of 72-96 hrs for detection of ***Enterococci*** in milk. The newly developed SAEB medium can find industrial application as a routine test for monitoring ***Enterococci*** at reception dock for

Benefits / Utility

Cost effective Rapid detection of ***Enterococci*** Validated in lab as well as by third party from M/s SGS India Pvt. Ltd., Gurgaon Simple one stage assay to execute in dairy processing unit for hygiene

Country Context

The assay has wide range of its application in dairy and non dairy sector for screening of ***Enterococci*** and can also used for hygiene monitoring of dairy environment at domestic as well as globally .

Scalability

Assay is flexible and can be modified as per the user's requirements

Business and Commercial Potential

The technology is suitable for small and medium enterprises that can transform the process into a kit prototype for industrial application as well as can also be adopted by the dairy / food industry for regulatory compliance without added cost. The technology has the potential to replace the existing medium for ***Enterococci*** for being cost effective (Rs 98.3 per liter as against Citrate azide agar (CAA) available @ Rs

Potential investors to this technical innovation

Stake holders with business in diagnostic kits and dehydrated media preparation can adopt this technology without added cost in their existing facility

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Financials

Total Capital Investment (excluding Land and licensing fees) : Rs 10-15 lakh Capital investment in routine microbiological facility required for aseptic work which includes bio-safety cabinet, centrifuge, autoclave, pH meter, Electronic balance, Incubator, Auto pipettes, vacuum drying system etc Expected sale/unit: Appr. 1000 test kit per month in the beginning and may go up significantly if assay became a

Target Market / Customer

Dairy industry Milk processing industry Pharmaceutical units FSSAI approved laboratory NABL accredited laboratory R & D independent test houses

Limiting factors for large scale commercialization

Modus operandi to get clearance for product trials from stake holders before licensing / MOU agreement

Social impact of the technology

Enterococci are used as indicators of faecal contamination of water and food and are of most interest to clinical, food and water microbiologists. Identification of ***Enterococci*** through conventional methods, by determining phenotypic characters is complicated and often requires 48 to 72 hrs. The current technology would be an alternative to existing prior art because it is real time and cost effective and simple to execute in dairy processing unit.