COMPANIES THAT ARE CURRENTLY SUPPORTED BY THE IBH

puris Natural Aroma Chemicals

Research and technology development to produce very high-value flavours and fragrances for the international market.

Linuset

Development of racemic as well as single isomer products that can be used as pharmaceuticals or intermediates to produce other high-value products.

KHEPRI WASTE TO FEED

Development of valuable products for the feed industry, using waste products as starting materials.

Pugeni Aromatics

Development of new generation bioplastics using biomass, which will replace the toxic PET plastics.

Using natural agriculture products to produce products for the mining industry.

STILHOEK BOERDERY

Development of products from agricultural waste to be used in agriculture as pesticides and natural biocides.

For more information about the IBH, contact Dr Lucia Steenkamp at **IBH@csir.co.za**

CSIR/TIA/DSI INDUSTRIAL BIOCATALYSIS HUB

The Department of Science and Innovation (DSI) has identified biocatalysis as one of the key enabling technologies to support the development of a sustainable industrial bioeconomy sector in South Africa. The DSI, in partnership with the Technology Innovation Agency, established the Industrial Biocatalysis Hub (IBH) at the Council for Scientific and Industrial Research (CSIR).

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The IBH provides a platform for industrial assimilation of biocatalysis technology through human capital development, applied research and development (R&D) and technology transfer, and for participation with industry. Increasing demand for the use of sustainable and renewable resources is driving the growth of this sector. The implementation of industrial biotechnology processes provides the opportunity to decouple industrial growth from environmental degradation through more sustainable production methods. Reduced water and energy consumption, emission of greenhouse gases and generation of toxic waste are all benefits of the adoption of biotechnology. Owing to the selective nature of enzymes and biological pathways used in biocatalysis, reactions that are not possible or feasible with traditional chemicals can be achieved.

The IBH will integrate and expand its networks into a common biocatalysis value chain within the South African economy from idea-generation to commercialisation. Commercialisation of technologies through existing and new industry partners will advance the green bioeconomy of the country, resulting in locally produced products and an increase in skilled researchers and job creation. An important objective is training students, interns and graduates to enable them to enter the manufacturing industry as skilled researchers to advance biocatalysis commercialisation.vv

OBJECTIVES OF THE IBH

The CSIR's training programme is committed to delivering the relevant transfer of skills across all aspects relating to biomanufacturing, using in-house developed courses and in collaboration with recognised local and international service providers.

The courses aim to:

- Coordination and support of the country's Biocatalysis industrialization activities
- Selection and support of nodes to support biocatalysis activities and capacity building
- Embarking on collaborative projects with enterprises to localise and develop technology in biocatalysis for implementation on commercial scale

FOCUS AREAS OF THE IBH

The IBH has three focus areas to meet its objectives. These are:

Supporting small, medium and micro enterprises that want to enter the biocatalysis manufacturing industry, and established companies that require R&D in biocatalysis technologies,

Supporting R&D at five university nodes that were selected through a competitive process (University of Western Cape, University of Fort Hare, Rhodes University, University of Witwatersrand, University of Free State) to perform industry-related research, leading to publications, technology progression and some postgraduate training; and

Appointing and training postdoctoral candidates and interns in industry-facing technology development in biocatalysis.

IBH INFRASTRUCTURE

The IBH is equipped with infrastructure and resources that enable R&D concepts to move from lab-scale to industry-ready products and processes. Not only do the facilities at the CSIR house all the relevant infrastructure, equipment and skills to take biocatalysis-related ideas from proof of concept to pilot scale, but the group has demonstrated its ability to transfer technologies to industry for commercialisation.