



G20 Initiative on Bioeconomy 3rd Meeting

CSIR ICC, Pretoria, City of Tshwane Metropolitan Municipality, Gauteng
Province, South Africa,
18 to 20 September 2025

SITE VISIT: FACILITIES

DAY 3: SATURDAY, 20 SEPTEMBER 2025

Venue: CSIR Campus, Pretoria

DESCRIPTION OF THE FACILITIES:

Tour 1: Encapsulation (active ingredients) and biodegradation (plastics)

Supercritical-CO₂ Encapsulation Pilot Facility: Get insight into the novel pilot-scale supercritical carbon dioxide encapsulation facility that can encapsulate sensitive active compounds such as probiotics and plant-based extracts that are challenging to process.

Biodegradability Testing Facility: View the testing facility focusing on measuring biodegradation and compostability of materials, the only facility in Africa of this kind.

Tour 2: Advanced Agriculture and Food (processing, IKS valorisation & quality testing)

Supercritical CO₂ Extraction: Supercritical Fluid Extraction (SFE) is a cutting-edge separation technique that utilises a supercritical fluid, commonly carbon dioxide (CO₂) - to extract specific compounds from solid matrices across multiple value chains like Pharmaceuticals & Nutraceuticals, Food & Beverage, Cannabis & Hemp Industry, Cosmetics & Personal Care and Agriculture & Natural Products.

Microwave processing unit: A patented Food and Drug Administration (FDA) approved aseptic continuous flow microwave food processing technology localised from the United States (US) and that aims to improve the shelf-life, nutrition and food safety standards of various fruits, vegetables or any other fine powder blended-based food products.





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Gas Chromatography Lab: The Advanced Agriculture and Food (AAF) Analytical Laboratory houses a state-of-the-art, fully automated 2-dimensional Gas Chromatography coupled with Time-of-Flight Mass Spectrometry (GCxGC-TOFMS) system, capable of high-accuracy results and fast turnaround times for issuing test results.

Food Innovations Lab: an innovation-driven facility established to support Small, Medium, and Micro Enterprises (SMMEs) in the Agri-food sector by providing access to advanced technologies for food product development, testing, and prototyping.

Capsule Lab: is a specialized facility designed for the development and production of high-quality capsules.

Tour 3: Biomanufacturing (advanced bio-based manufacturing)

The Biomanufacturing Industrial Development Centre (BIDC) offers technical support to small, medium and micro enterprises (SMMEs) who work in the development of biological products and speciality chemicals. See the complete lab and pilot-scale bioprocessing facilities to allow the development and production of bio-based technologies using wild-type and genetically modified microorganisms. A stop at the Industrial Biocatalysis Hub (IBH) is included to showcase technologies that utilise enzymes to contribute to green chemistry and the circular economy.

Tour 4: FuturePharma (bio-pharmaceuticals manufacturing)

The **FuturePHARMA Biopharma** provides multipurpose infrastructure for producing investigational biologics, including vaccines, for pre-clinical and early clinical development and





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is the first of its kind in South Africa. Our ISO 7 cleanroom and ISO 5 fill or finish and all unit operations for biopharmaceutical production will be on display.

FuturePHARMA continuous flow-based processing technologies is an open innovation facility for translational process development. development and scale up, to bridge the gap between R&D and commercial implementation using hybrid processing technologies. By integrating modern approaches to chemical processing such as continuous flow chemistry, the research provides enhanced efficiency and improved safety profiles for Active Pharmaceutical Ingredients (API) production.

Click [here](#) to register for the tours.

