

Bioprocess development

The primary task of the Bio Pilot Plant is the process development and scaling of microbial systems. We regularly develop the process technology for the microbial synthesis of active compounds and value products, which have been discovered at HKI. We then provide these compounds for further scientific analyses and to enable functional testing. But we also collaborate with external partners from industry and academia to support them in translating their fundamental microbial discoveries onto a new level towards biotechnological application. For this purpose, we can realize the entire process chain from the microbial substrate to the purified final product in liter to m³ scale.



Equipment

The instrumentation of the Bio Pilot Plant allows for the scaling of bioprocesses from μL -microtiter plates to m³-stirred tank reactors. It includes two „BioLector“-units for screening in microtiter plates as well as a droplet-based microfluidic screening platform, for the targeted cultivation, investigation, and screening of microbial pure and co-cultures. For process development and process scaling to obtain larger amounts of targets compounds if necessary, we are equipped with numerous stirred tank bioreactors up to 4.5 m³

volume, which can be operated in batch, fed-batch, parallel, continuous or cascade mode.

For downstream purification, centrifuges, plate separators, membrane modules, rectification and distillation columns, rotating evaporators etc., as well as various chromatographic procedures are available. A broad spectrum of extraction processes can be realized in special explosion proof rooms.

The Bio Pilot Plant is operated by an experienced team of technicians, engineers and scientists.



Research focus

At the moment, the majority of our processes are aerobic pure culture systems. In future, we will increasingly also work with anaerobic bioprocesses and defined mixed cultures. Additionally, viscous bioprocesses, no matter if because of a viscous product, filamentous growth or a solid fibrous substrate, are of special interest.

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