



Phyton Biotech

Specialty Fermentation Solutions

Commercial Manufacturing via PCF®











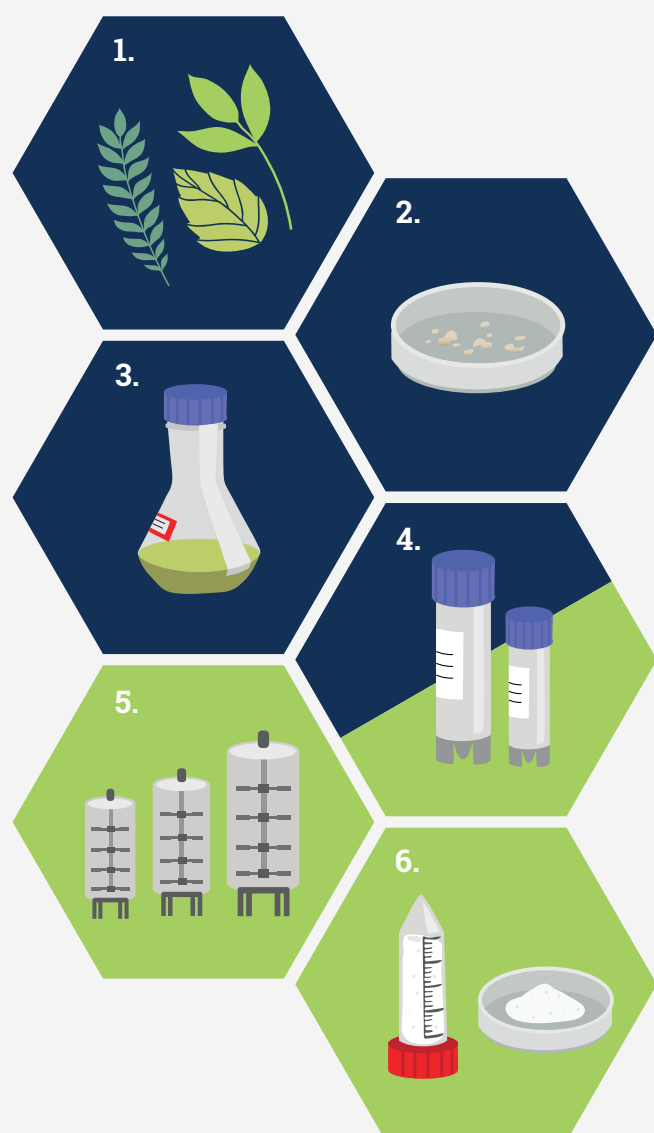
Award-Winning “Green Chemistry” Process Leader

Phyton Biotech is the largest global supplier of Plant Cell Fermentation (PCF®)-derived **Paclitaxel & Docetaxel** API. We have transformed plant cell culture technology and have developed a commercially scalable, reproducible, “green” (PCF®) process for the production of high-value phytochemicals. PCF® offers a time, risk and cost-balanced pathway to commercially viable production processes, overcoming limitations and drawbacks often experienced with traditional plant extraction and chemical synthesis.

With certified GMP facilities in Germany and Canada, Phyton Biotech has a successful track record of developing and implementing innovative custom supply solutions for clients around the world.

PCF® Advantage:

-  **Independent from plant harvest**
-  **Clean technology**
-  **Consistent high quality**
-  **Complete control of supply chain**
-  **Reliability**
-  **Environmental sustainability**
-  **Scalable capacity**
-  **Cost competitive**



Cell Line Development

- 1. Plant Sourcing**
Source best starting material without destroying nature
- 2. Cell Line Development**
Use the best natural cell factories from the whole plant
- 3. Cell Culture Development**
Provide the best culture conditions to allow highest production performance of cells

Product Manufacturing

- 4. Cell Bank**
One viable cell as starting material serves for creating tons of product
- 5. Upstream Fermentation**
Eliminates supply constraints
- 6. Product Recovery & Purification**
From PCF® biomass to enriched extracts or purified APIs

Specialty Fermentation Solutions

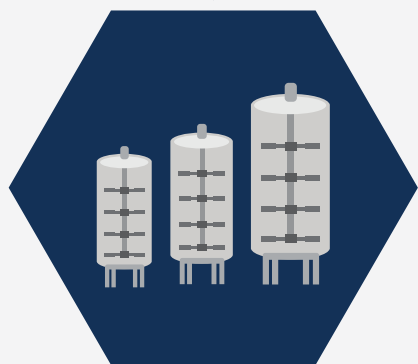


CDMO for Plant-Derived Actives

Phyton Biotech offers comprehensive product/process development and commercial manufacturing services for high-value phytochemicals using our award-winning and environmentally responsible PCF® platform.

Our teams in Germany and Canada are uniquely qualified to carry out a full development program for plant-based molecules, extracts and recombinant products for use in a range of industries. Phyton Biotech is known globally for excellence, innovation, quality, reliability and cutting-edge technological solutions.

- 🌿 **World's largest cGMP PCF® facility**
- 🌿 **Over 25 years' highly specialized experience in development and commercial production**
- 🌿 **Customized processes for Pharmaceutical, Traditional Chinese Medicine, Cosmetic & Food Ingredient industries**
- 🌿 **German and Canadian technological excellence at its best**



Feasibility Study with Plant of Interest

- ⚙️ **Feasibility** – Assess whether plant-based molecule/extract can be expressed via PCF®
- ⚙️ **Sourcing of Plant Material** – From natural sources
- ⚙️ **Selection of Plant Material** – Select and use the best natural cell factories from the target plant
- ⚙️ **Cell Line Development** – Identify and create high-producing cell line, including cryopreservation
- ⚙️ **Fermentation/DSP Development** – One viable cell can produce tons of commercial product

Process Development & Scale-Up

- 🏭 **Semi-Synthesis** – Chemistry is applied if only the precursor is accessible by PCF®
- 🏭 **Scale-Up** – Capable of developing processes to scale up to commercial production capacity
- 🏭 **Small- to Large-Scale Commercial Production** – Manufacture products from small-to-commercial scale
- 🏭 **Purification Capabilities**
- 🏭 **Analytical Methods Development Capabilities**

Commercial Production

- 📈 **Full Project Management** - From R&D to commercial launch
- 📈 **Regulatory Support**
- 📈 **Analytical Testing Capabilities**
- 📈 **cGMP Manufacturing** - FDA & EDQM-inspected facilities
- 📈 **Capacity** - World's largest PCF® manufacturing facilities



Our Global Offices

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