

Innovative Research Solutions with Industry

Environment

CLIENT:
Microgen Biotech

AREA:
Biotechnology

Identifying bacteria strains for application in industrial bioremediation

Microgen Biotech is a research-orientated spin-out company from IT Carlow that provides bioremediation solutions for the cleaning of contaminated soil, groundwater and toxic sediment.

The company uses an exclusive combination of natural soil degrading bacteria and site specific organisms coupled with biopile engineering in their unique treatment process. The company was established by Dr Xuemei Germaine, a PhD graduate from IT Carlow, and focuses primarily on the Chinese market.

Microgen Biotech's bioremediation products compose of bespoke pollutant degrading microbial consortia, concentrated in a novel biodegradable bead form. Currently in the European and US markets, microbial based bioremediation products are applied as liquids. The microbes often have very low survival rates when applied in this way and thus do not perform the bioremediation process effectively.

Microgen Biotech's technology allows site-specific microbes to adapt quickly to their soil environment and facilitate a slow release system for the introduction of huge numbers of highly active pollutant degrading cells, ensuring a highly efficient remediation process.

EnviroCORE at IT Carlow is involved in strategic applied research and education in innovative environmental biotechnology with a view towards sustainable economic and social development.



Dr Xuemei Germaine, Microgen Biotech

Through collaboration with the researchers and technical expertise in EnviroCORE, Dr Germaine identified a number of bacteria strains. She believed that these strains, developed via her own work as a student and by other researchers at IT Carlow, could be applied to industrial bioremediation projects in China. Microgen Biotech was set up as a spin-out company to commercialise these strains in addition to providing technical know-how and site-specific project management through collaborations with Chinese companies. ➔

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•→ To help further develop her business acumen, Dr Germaine participated on the IT Carlow New Frontiers programme for entrepreneurs which focused on structuring the business model and developing an investor ready business plan for the new enterprise. Following completion, Dr Germaine was awarded assistance from Enterprise Ireland's Competitive Start Fund in recognition of the potential of the new business.

Microgen Biotech is currently in negotiations with a number of Chinese companies to secure contracts to develop the infrastructure necessary for bioremediation projects and to provide their microbial bead technology, product development and project design services. Microgen Biotech chose to initially enter this market as China has many environmental issues which severely affect its biophysical environment, eco-system functions, and impact adversely on human health.

The Chinese government has acknowledged the seriousness and scale of the environmental problems and has made national commitments to tackle these issues. As a result of recently implemented government policy and regulation, it is predicted that the commercial remediation industry in China will experience major growth.

As a spin-out, Microgen Biotech is located at IT Carlow's Enterprise and Research Incubation Centre and uses the Institute's laboratory facilities to conduct its ongoing research and commercialization activities.

Companies currently providing remediation services in China are using methods which are extremely costly, may destruct natural habitats, can cause secondary pollution and often prove infeasible for large contaminated sites. The technology and processes devised by Microgen Biotech provide a cheaper and more environmentally sustainable solution. ■

TESTIMONIAL

Dr Xeumei Germaine

Microgen Biotech

"Working with IT Carlow has been extremely helpful for MicroGen Biotech. Our relationship with the Institute facilitated ease of access not only to the scientific expertise, but also to the other experts and supportive advice required for a start-up including financial, business and engineering, as well as top class physical facilities."

Institiúid Teicneolaíochta Cheatharlach



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