

Industrial biotechnology in Hungary from the viewpoint of enterprises

*Round Table on Industrial
Biotechnology in Hungary
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A biophysicist talks physics to the biologists and biology to the physicists, but then he meets another biophysicist and they just discuss women.

This is biology's most fundamental fact.

White Biotech vs. Red Biotech 1

- Hungary has a competitive position and high development potential in red biotechnology
- *Why it is not the same with white biotech?*
 - the Hungarian pharma industry has a long standing scientific and manufacturing tradition with strong domestic industrial base and global market presence
 - for the pharma industry promoting R&D and innovation has always been the preferred strategy, so the pharma industry was naturally open to the new (biotech) impulses

White Biotech vs. Red Biotech 2

- **White biotech is lacking an established domestic industrial base in Hungary, which would/should provide for**
 - *supporting its development,*
 - *financing and facilitating its R&D activity.*
- **The Hungarian industrial biotechnology is being established on a „green-field“ by a few, scattered entrepreneurs encouraged and motivated by the positive examples from abroad**

Industrial Biotech in Hungary

- **Main features of the present day industrial biotechnology in Hungary**
 - mostly based on technology transfer from abroad,
 - domestic R&D is very limited,
 - domestic research is mostly academic, has weak links to domestic industries, what results in
 - a gap between research objectives and market requirements and
 - dependence on public funding

One positive example

- **Corax-Bioner is one of the very few positive examples:**
 - **founded by strong investment group,**
 - **knowledge based company, which integrated R&D into its strategy from the start,**
 - **spends 7-10% of its income on R&D,**
 - **works together with several Hungarian universities and research organizations,**
 - **directs R&D activity towards solving tasks set by the market**

Corax – Bioner

- **Activities of Corax-Bioner:**
 - **Bioremediation**
 - mineral oil pollution, acid tar, hazardous chemicals applying biotechnological solutions
 - **Waste management**
 - green waste, food processing industry, keratin rich, etc.
 - **Manufacturing biotech agents**
 - microbe compositions, enzymes, etc.

Corax-Bioner production facility (Szeged)



Technology transfer

1. Bioethanol production

- major projects announced but now on hold, under reconsideration
- serious setback in 2007 due to crop prices
- Hungarian domestic needs mainly covered by 2 existing facilities (Győr and Szabadegyháza)
- **market is waiting for second generation biofuel technologies**

2. Biogas

- slow start but high potential
- mature German and Austrian biogas technologies (with references) are being imported

Hungrana (Szabadegyháza)



- **Hungrana Starch and Isosugar Manufacturing & Trading Co. Is Europe`s leading isosugar producer**
- **Owners: Hungrana/Tate&Lyle/ADM**
- **Hungrana is expanding its production capacity and actively involved in R&D both for core technologies and slurry fermentation**

Present of biogas industry 1

- **Waste water sludge and solid household waste treatment**
 - increasing thanks to sufficient funding for canalisation and sewage treatment projects for bigger cities (12 MW_{el})
- **Agricultural biogas industry**
 - 5 units in operation (6.2 MW_{el} capacity)
 - up to 39 animal farms received investment subsidy to build biogas plants for manure treatment (up to 16 MW_{el})

Where is this photo taken?



Biogas plant 1,7 MW Pálhalma



Present of biogas industry 2

- „Green electricity“ price is low (9.5 EURcent/kWh) and does not allow for investments without subsidy
- Further projects under development in hope for investment subsidy from Environment & Energy funds
- Kaposvár (Hungary) is a special case: sugar beet presscake is processed, 60,000 m³ methane/day, burned locally

Biogas – biomethane - biofuel

- **The Hungarian government does not promote the use of upgraded biogas (biomethane) as transportation fuel**
- **In spite of very extensive natural gas network all over the country, only 2 cities (Szeged and Debrecen) have natural gas driven bus fleets**

Biomethane (FNR data)

Biofuels in comparison

Range of a car with biofuels from 1 hectare arable land



Where are the problems?

- **Spin-off activities are not motivated**
- **Specific, industrial biotech focused EU/HU funds are virtually non-existent**
- **Lack of seed- and early stage private financing**
- **Domestic R&D is totally dependent on scarce public funding**
- **Technology transfer is very limited**

Government support

- 2004: Hungarian Biotech Strategy is approved
- Encouraging measures have been introduced (supporting incubation, clusters, training)
- Some R&D funding channels opened
- ***But:*** no substantial financial support (like tax break for innovative SME's) can be expected in the medium term, except those coming from EU sources

First Hungarian Biogas Ltd.

- **Small, knowledge based company dedicated to introducing up-to-date biogas technology in Hungary**
- **Main activities:**
 - **technology transfer**
 - **R&D in biogas technology**
 - **biotechnological service to biogas plant operators**
 - **engineering**
 - **project development**

Industrial Biotechnology in Hungary

Thanks for your attention!

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