BUSINESS CONSULTANTS

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GENETIC ENGINEERING AND SWEETENERS

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STRATEGIES TO GROW YOUR BUSINESS

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In this case study, an ingredients company engaged CPL Business Consultants to assess the possible impact of technological developments in genetic engineering, molecular biology and biochemistry on the polyols sweeteners business.

Specifically, if the mechanism of sweet taste is clearly understood, new high-intensity sweeteners may be developed that are of higher quality, greater potency and/or with more useful synergies than existing products. Such developments could have an even more significant impact in the longer term on sugar sales than has yet occurred.

The use of most polyols had been constrained partly by technical characteristics that are inherent and partly by their high cost when compared to sugar. Some polyols, xylitol, isomalt and possibly erythritol, have superior properties in terms of taste and texture but were quite expensive. Technological innovations that significantly reduced the cost of these polyols would therefore lead to an increase in their use.

After an introduction to genetic engineering, the study focused on the impact of current technologies in two specific areas – on the mechanism of sweet taste and on polyol sweeteners, in particular xylitol and erythritol. The study contained information on the then current understanding of these areas and discussed what may happen in the future as technology progresses. The appendices contained detailed reports on genetic engineering, protein analysis and xylitol technology.

GENETIC ENGINEERING AND SWEETENERS

Genetic Engineering

- Sweet taste mechanism
- Impact of technology to date
- Cloning of taste cell proteins
- Development of structure-taste theories

Potential for Genetic Engineering and Sweeteners

- Polyol production

Xylitol

- Impact of technology to date
- Developments in fermentation
- Enzymes
- Sources of xylan/xylose
- Substrates for polyol production

Erythritol

- Impact of technology to date
- Fermentation
- Formulation

Overview of molecular biology and genetic engineering

Xylitol Technology

CPL Business Consultants has worked on a number of sweeteners produced by fermentation, including stevia and rebaudioside M by fermentation and bioconversion. Please contact us for further details.

Have a look at our PowerPoint Introduction and Brochure describing deliverables, differentiators and case studies. You can also review eight case studies.