

SEBACIC ACID BY FERMENTATION AND ALPHA- LINOLENIC ACID

Prepared by:

CPL Business Consultants

Milton Park Innovation Centre, Abingdon, OX14 4RY, United Kingdom

Tel: +44 1865 257 252, info@cplconsult.com, www.cplconsult.com

STRATEGIES TO GROW YOUR BUSINESS



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In this case study, CPL Business Consultants was engaged by a client to look at the technical feasibility of producing sebacic acid by fermentation or bioconversion and also the scientific evidence to support the efficacy of alpha-linolenic acid as a 'plant-based omega-3'.

A specialist in castor oil firstly wanted to know if it is potentially possible to make sebacic acid from castor oil by a more efficient and safer method, for example, using fermentation or enzymes. The client also asked CPL to determine if any companies had thought of this, if it is feasible, or if there is any research or intellectual property *etc.*

Secondly, the client wanted to investigate alpha-linolenic acid (ALA), a physiological precursor of DHA and EPA, known to be very effective in enhancing a number of aspects of human and animal health. People believed that ALA was less effective at enhancing health than omega fatty acids from fish or algae, but recent research challenged this view. The client, therefore, asked CPL to review the evidence that suggested that ALA itself is quite effective.

CPL reviewed the recent evidence and market views and also made recommendations about the feasibility and the sense of proceeding to larger studies or engaging in research partnerships on these topics.

Click to see [the contents of the study](#), or otherwise, look below for an outline.

SEBACIC ACID AND ALPHA-LINOLENIC ACID

Objective and Background

- Sebacic acid
- ALA

SEBACIC ACID BY FERMENTATION

Executive Summary

- Method
- Principal findings
- Conclusions & Recommendations

Introduction

- Value-added products from vegetable oils
 - Castor oil
 - Linseed oil
- Sebacic acid
 - Structure and uses
 - Synonyms

Contact Reports

Patents

- Bioconversion of ricinolenic acid
 - Process for making polycarboxylic acids
- Use of microbes for dicarboxylic acid production *e.g.*:
 - Microbial synthesis of didodecane acid.
 - Microbial preparation of long-chain dicarboxylic acid

Scientific Literature

- Relevant research, for example:
 - Sebacic acid and bioconversion of ricinolenic acid
 - Production of conjugated fatty acids by lactic acid bacteria

News

- Sebacic acid, for example:
 - Sebacic acid line suspends production
 - A dramatic shift for US sebacic acid
 - Sebacic acid plant experiencing start-up problems

ALPHA-LINOLENIC ACID (ALA)

Executive Summary

- Objective and background
- Method
- Principal findings
- Conclusions & Recommendations

Contact Reports

Omega-3 Biochemical Pathway

- Pathways to omega-3 *e.g.* with
 - Stearidonic acid
 - Docosapentaenoic acid

Scientific Review Articles *e.g.*:

- Conversion efficiency of ALA to DHA humans
- ALA (plant sources) and DHA + EPA (marine sources) as dietary omega-3 fatty acids

News

- News articles, for example:
 - Flax and borage oil may boost skin health from within
 - FSA draft opinion on *Echium* oil

Patents

- Docosahexaenoic acid producing bacterial strains

Appendix

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