MULTICLIENT STUDY

Yeast and Yeast Extracts in Fermentation

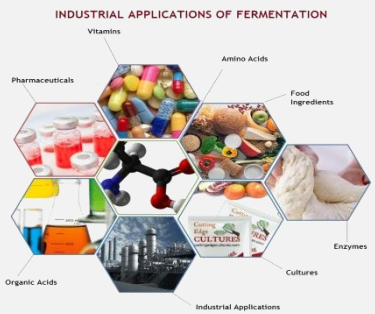
Products, Players, Market Structures, Trends

USA, Europe, China, India, ASEAN

2015-2020

Published June 2016

Sectors



Pharmaceuticals, Vitamins, Amino-Acids, Organic Acids, Food Ingredients, Cultures, Enzymes and Industrial Applications

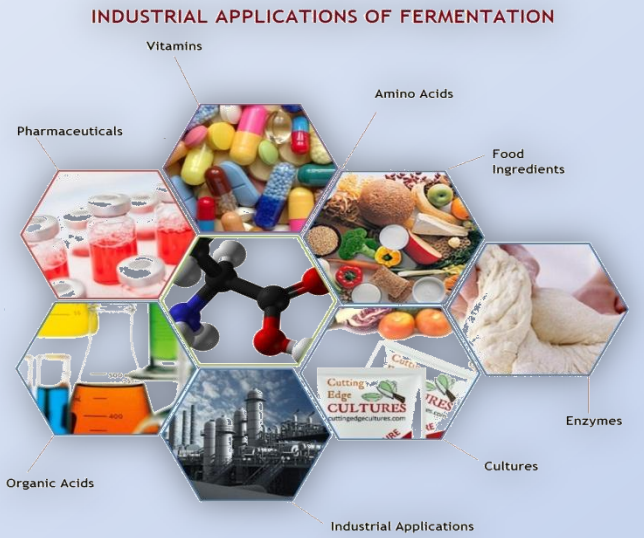
Markets

USA
Europe (EU28, Switzerland, Norway)
China
India
ASEAN

GIRACT
Geneva, Switzerland

Transnational Business Research & Consultancy

Introduction



Fermentation as a technology for producing ingredients is well-established. However, following the recent structural changes in the various ingredient sectors across the world, new opportunities are emerging in the form of new products and better process yields. Increasingly, the development of new food ingredients involves 'bio-processes', and particularly fermentation technology, which can be used to convert basic raw materials into value-added, innovative products.

These bio-processes are not only yielding very high value pharmaceutical APIs, but also value added "natural" fermentation derived analogues of synthetic food and personal care ingredients. Yeast and yeast extracts play an important role in media used these fermentation processes. Biopharmaceutical fermentation though presents a challenge since the west is largely moving towards chemically defined media and yeast extracts are being phased out due to their "undefined" nature. The role of companies such as Sigma-Aldrich (now Merck) in this sector, enabling access to customers has to be understood. Additionally, the consolidating trend (Sigma-Aldrich/Merck acquisition) in this critical part of the value chain needs to be put in perspective. In the non-biopharmaceutical sectors, cost of production is of high importance and therefore yeast extracts as a commodity ingredient can still offer a USP. This study has attempted to understand these dynamics in the global fermentation sector's value chain.

Introduction

GIRACT, the food ingredients and technology specialist market research company, has a background of 30 years' research and forecasting. It has an unparalleled understanding of the dynamics of the marketplace in food ingredients and technologies, and privileged contacts with opinion leaders worldwide.

As a key player or a company wishing to learn more about these buoyant ingredients, this study serves a dual purpose for you - to help explore and exploit these high-profile markets and to make full use of an in-depth understanding of the market forces to develop your overall business in this sector.

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Objectives of this study

Yeast and Yeast Extracts in Fermentation
Products, Players, Market Structures, Trends

- To provide an overview of industrial fermentation sectors (pharmaceutical, biologicals, food cultures, white biotech products, agriculture, others)
- To understand the use (type, volume, price, etc.) of yeast and yeast extracts in media for industrial fermentation
- To elucidate the supplier competitive structure and environment
- To track the movement of yeast/yeast extracts in the industrial fermentation value chain and identify qualitative drivers of purchase
- To forecast volume till 2020 based on identified drivers and challenges

Subscription

This unique study examines Yeast and Yeast Extracts products, players, market structures, trends across USA, Europe, China, India & ASEAN.

SCOPE

Products

- Yeast
- Yeast Extracts (from brewers', baker's, torula, wine, etc.) used in fermentation media

Markets

- USA
- Europe (EU28, Norway, Switzerland)
- China
- India
- ASEAN

STUDY HIGHLIGHT

Programme

Following an initial review of Giract's extensive in-house data, the dominant element of the study have been carried out with key actors - producers, end-users, industry experts and authorities - in order to derive real understanding of the latest changes in market forces

Current: 2015
Forecast: 2020

Timescale

WHAT DO YOU GET?

1. **Electronic Copy** of report in searchable PDF format
2. **One Printed Copy**

3. Report published in **June 2016**

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Yeast & Yeast Extracts in Fermentation

Products, Players,
Market Structures, Trends
2015–2020

MULTICLIENT REPORT

June 2016

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1. INTRODUCTION

1.1. BACKGROUND

Fermentation as a technology for producing ingredients is well-established. However, following the recent structural changes in the various ingredient sectors across the world, new opportunities are emerging in the form of new products and better process yields.

Increasingly, the development of new food ingredients involves 'bio-processes', and particularly fermentation technology, which can be used to convert basic raw materials into value-added, innovative products. These bio-processes are not only yielding high value pharmaceutical APIs, but also value-added "natural" fermentation derived analogues of synthetic food and personal care ingredients.

Yeast derivatives, such as inactive yeast, yeast autolysate and yeast extract play an important role as nitrogen sources in media used in fermentation processes. Biopharmaceutical fermentation though presents a challenge since the industry is increasingly moving towards chemically defined media and yeast derivatives are being phased out due to their "undefined" nature.

The role of companies such as Sigma-Aldrich (Merck) supplying media to the research community is important. Additionally, the consolidating trend (Sigma-Aldrich/Merck acquisition) in this critical part of the value chain needs to be put in perspective. In the non-biopharmaceutical sectors, cost of production is of high importance and therefore yeast extracts as a commodity ingredient can still offer a USP.

1.1. OBJECTIVES

- To provide an overview of industrial fermentation sectors
- Understand the use (type, volume, price, etc.) of yeast derivatives as nutrients in media for industrial fermentation
- Elucidate the supplier competitive structure and environment
- Track the evolution of yeast derivatives in industrial fermentation and identify qualitative drivers of purchase
- Forecast volume till 2020 based on identified drivers and challenges

1.2. SCOPE

1.2.1. PRODUCTS

The product groups included within this report are:

- Dried Inactive Yeast (DIY)
- Yeast Autolysates (YA)
- Yeast Extracts (YE)

1.2.2. END USER SECTORS

The report focuses on the use of yeast derivatives as nutrients in fermentation media used in the following applications:

- Pharmaceuticals
- Vitamins
- Amino-acids
- Organic acids
- Food ingredients: antioxidants, flavors, colours
- Cultures
- Enzymes
- Other industrial applications

Active yeasts used in the production of specific molecules are **not** included.

The company information provided in the report is Giract's interpretation of interviews and other data and does **not** represent an official company position.

1.2.3. GEOGRAPHICAL

USA, Europe (EU28+Norway+Switzerland), China, India, ASEAN (Indonesia, Thailand, Philippines, Malaysia, Singapore, Vietnam)

1.2.4. TIMESCALE

- Current: 2015 (full-year)
- Forecasts: 2020

Sample Report Pages

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3.2.9. PRODUCTION

3.2.9.1 PRODUCTION OVERVIEW

Estimated Production of yeast derivatives, all types, USA, 2015 tons dsb

Producer	DIY	YA	YE	Production
Bio Springer	..	..	..	..
Ohly				
Kerry				
Sensient				
Lallemand				
Others				
Total				

Source: Giract, based on interviews

(#data edited#)

Data Edited

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3.2.11. DEMAND

3.2.11.1 CURRENT DEMAND

Demand by sector for yeast derivatives was estimated as follows:

Current Demand by application area, all types, USA, 2015 tons dsb

Sector	DIY	YA	YE
Pharmaceutical			
Vitamins			
Amino acids			
Organic acids			
Food ingredients			
Cultures			
Enzymes			
Industrial applications			
Total demand			

Source: Giract, based on interviews

(#data edited#)

Data Edited

Sample Report Pages

3.2.11. DEMAND

3.2.11.1 CURRENT DEMAND

Demand by sector for yeast derivatives was estimated as follows:

Current Demand by application area, all types, USA, 2015 tons dsb

Sector	DIY	YA	YE
Pharmaceutical			
Vitamins			
Amino acids			
Organic acids			
Food ingredients			
Cultures			
Enzymes			
Industrial applications			
Total demand			

Source: Giract, based on interviews

(#data edited#)

Data Edited

3.2.11.2 DEMAND FORECAST

Demand forecasts by sector in 2020 are estimated as follows:

Forecast Demand by Application Area, all types, USA, 2020 tons dsb

Sector	DIY	YA	YE
Pharmaceutical			
Vitamins			
Amino acids			
Organic acids			
Food ingredients			
Cultures			
Enzymes			
Industrial applications			
Total demand			

Source: Giract, based on interviews

(#data edited#)

Data Edited

Sample Report Pages

4.4.2.14 *SANDOZ GMBH*

Biochemiestraße 10,
6250 Kundl
Austria
Tel: + 43 53382000
Fax: + 43 5338200460
www.sandoz.com
www.sandoz.at

Relevant products

Antibiotics, biosimilars

Background

Sandoz (a division of Novartis group), is one of the world's leading pharmaceutical companies. Sandoz GmbH, headquartered in Kundl (Tyrol), is Austria's largest pharmaceutical manufacturer. It employs about 3500 people at its Kundl, Schaftenau and Vienna sites. The Kundl site specialises in the production of antibiotics and biosimilars.

Sandoz is the leading producer of biosimilars (with a significant market share), approved in the highly regulated markets of USA, Canada, EU, Japan and Australia. Sandoz currently produces and offers biosimilar versions of human growth hormone, G-CSF and epoetin alfa. All Sandoz biosimilars in the EU are approved by the European Medicines Agency.

Use/non-use of yeast derivatives

The company uses YE, YA and DIY in powder form for microbial fermentation. The company does not use yeast derivatives in penicillin production as it is too expensive for low-cost end-products like penicillin (not economically feasible). Instead, it uses vegetable proteins during the fermentation process to make penicillin.

However, yeast derivatives are used for the production of some biosimilars using bacterial fermentation.

	Aware?	Tested?	Used?	Using?	Will use?
Deactivated yeast					
Yeast autolysate					
Yeast extract					

Data Edited

Company views on yeast derivatives

Some of the general parameters for the selection of yeast derivatives (especially yeast extract) include:

- Free from any animal-derived material
- Solvent declaration
- Melamine declaration
- Composition of amino acids
- Endotoxin content
- Microbiological load
- Nitrogen content
- Amino acid composition

Currently, 10 different types of yeast derivatives are bought from more than one supplier, all in powder form (further details on types of yeast derivatives were not divulged). These are used in making various types of biosimilar products such as growth hormones. The company is also engaged in third party production and therefore, it sometimes uses yeast derivative from a particular supplier as per specific customer demand.

Ingredient specific questions (for derivatives used)

Yeast Extract

Generally, once YE from a supplier is used over a period of time, the industrial process is adjusted accordingly, and it is very difficult to change the YE supplier for that process. Hence, the company has started doing tests for any new project, where YE from different suppliers are tried and the one that gives the best results during fermentation is chosen. In the case of suppliers who are not able to provide details on composition/specifications, the tests permit Sandoz to compare and select the best yeast extract.

CoA is generally sought from the supplier.

Resampling procedure is conducted for some applications (biosimilars), wherein the supplier has to reserve the batch/lot for Sandoz until the sample clears all specification tests (conducted by the company) and, once cleared, Sandoz gives a go-ahead to procure that lot.

YE does not have to be non-GM, but the supplier should be able to declare if it is GM or non-GM sourced.

The company has no preference for brewers' or baker's YE.

All yeast derivatives (YE, DIY, YA)

The company buys yeast derivatives from both producers and distributors, and not necessarily Europe-based. Bio Springer, BD Biosciences, Sigma-Aldrich are among the key suppliers/distributors.

Price depends on the quantities bought per year. The company buys a total of 50-100 tons of YE, DIY and YA.

Price of YE is lower for the company than that of YA in view of the higher volumes of YE purchased.

The interview was reluctant to divulge price and supplier details.

Future prospects for yeast derivatives use

In coming years, unless Sandoz decides to increase the production capacity for its on-going projects in which it includes yeast extract/yeast derivatives, the amount of yeast derivatives used will not increase.

For new projects, the company is not planning to use YE, but rather synthetic media. This is because yeast extract composition changes from lot to lot (even from the same supplier) and yeast extract is proving expensive and difficult to handle. Synthetic media is a mixture of a number of different nutrients, which can replace yeast extract (vitamins, peptides, minerals, amino acids, etc.).