Production of Biotechnology Based Bulk Drugs

Introduction

Biotechnology has played an essential role in the development of the healthcare chemical industries. The range of product includes diagnostic, prophylactic and therapeutic agents. The discovery of a potentially active compound starts a sequence of exhaustive chemical and biological testing that may culminate in manufacture of the agent or an improved analog. The role of biotechnology in this complex path to regulatory approval and marketing is diverse. Biotechnology is a field of applied biology that involves the use of living organisms and bioprocesses in engineering, technology, medicine and other fields requiring bio products.
Biotechnology also utilizes these products for manufacturing purpose. Some of the examples of drugs produced through biotechnology are penicillin, lincomycin, streptomucin, tylosin, peptide antibiotics, cephalosporins, etc. Modern use of similar terms includes genetic engineering as well as cell and tissue culture technologies. Biotechnology draws on the pure biological sciences and in many instances is also dependent on knowledge and methods from outside the sphere of biology. Conversely, modern biological sciences are intimately entwined and dependent on the methods developed through biotechnology and what is commonly thought of as the life sciences industry. The development of biotechnology is taking place in almost all fields of human life.
The recent advances in the field of basic genetics have opened up new vistas, potentials and possibilities. Some of the fundamentals of the book are the pharmaceutical industries, marketing strategy, common features in the evolution of products and processes, process technology fermentation, product recovery, new trends in biotechnology, penicillins, biosynthesis and regulation of thienamycin, olivanic acids and epithienamycins, aminoglycoside antibiotics, streptidine and deoxystreptamine, streptomycin, neomycin, paromomycin, ribostamycin and butirosin gentamicin, micronicomicin and sisomicin, tylosin, peptide antibiotics, current applications of peptides, blasticidin S: an agricultural antibiotic bleomycin and bestatin:
an agricultural antibiotic bleomycin and bestatin: peptides used in anticancer therapy etc. The present book contains process of biotechnology based bulk drugs like penicillin, B lactam antibiotics, aminoglycoside antibiotics, peptide antibiotics, anti cancer agents, lincomycin etc. This is very resourceful book for entrepreneurs, technocrats, research scholars, libraries etc. The present book contains process of biotechnology based bulk drugs like penicillin, B lactam antibiotics, aminoglycoside antibiotics, peptide antibiotics, anti cancer agents, lincomycin etc. This is very resourceful book for entrepreneurs, technocrats, research scholars, libraries etc.
Market outlook

The global medical industry is going to experience tremendous growth in the coming years with a range of development and investment opportunities for companies looking out to enter in this industry or to expand within. Healthcare industry is one of the largest sectors in the country both in terms of revenue as well as employment.

The global bulk drugs market was valued at around USD122 b in 2014 and is expected to reach USD175 b by 2019, growing at a CAGR of 7.5% during 2014–19.
Indian Bulk Drugs Market

Indian bulk drugs market (USD b)

CAGR: 10.7%

2014: 10.2
2019: 17

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India's bulk drug exports are likely to grow at a compounded annual growth rate (CAGR) of 12-14 per cent till 2018-19, driven largely by exports to regulated markets as well as continued growth in the semi-regulated markets.

Driven by exports to both regulated and semi-regulated markets, India’s bulk drug exports are likely to grow at a compound annual growth rate (CAGR) of 12–14% up to 2018–2019.

Most of this growth is expected to come from generics, with exports of bulk drugs used for manufacturing off-patent drugs expected to continue to grow at a 12–14% CAGR in the next five years till 2018–2019. Demand for active pharmaceutical ingredients from on-patent drugs, on the other hand, is expected to grow at a slower pace.
# Global Drug Market

<table>
<thead>
<tr>
<th></th>
<th>2012-13</th>
<th>2016-17</th>
<th>%Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global pharma market (in $ bn)</td>
<td>962</td>
<td>1200</td>
<td>24.7%</td>
</tr>
<tr>
<td>Global generic market (in $ bn)</td>
<td>274</td>
<td>432</td>
<td>57.7%</td>
</tr>
<tr>
<td>Global generic market (in $ bn)</td>
<td>28.5%</td>
<td>36%</td>
<td></td>
</tr>
<tr>
<td>Indian pharma generic drug exports (in $ bn)</td>
<td>15</td>
<td>25</td>
<td>66.7%</td>
</tr>
</tbody>
</table>
The generic drug market is expected to grow at nearly 60 percent by the year 2016-2017 and contribute nearly 36 percent of the total market in the year 2016-2017.

The Indian pharmaceuticals market increased at a CAGR of 17.46 percent in 2015 from USD6 billion in 2005 and is expected to expand at a CAGR of 15.92 percent to USD55 billion by 2020.
Revenue of Indian Pharmaceutical Sector (US$ Billion)
Growing per capita sales of pharmaceuticals in India offers ample opportunities for players in this market. Per capita sales of pharmaceuticals is expected to expand at a CAGR of 19.4 per cent to USD33 by 2016.
Per Capita sales of Pharmaceutical (USD)

- **2008**: $8
- **2009**: $9
- **2010**: $11
- **2011**: $13
- **2012**: $14
- **2013**: $16
- **2014**: $19
- **2015**: $23.43
- **2016F**: $33

*CAGR: 19.4%*
The Indian pharmaceuticals market increased at a CAGR of 17.46 per cent during 2005-16 with the market increasing from US$ 6 billion in 2005 to US$ 36.7 billion in 2016 and is expected to expand at a CAGR of 15.92 per cent to US$ 55 billion by 2020.
INTRODUCTION

- The Pharmaceutical Industries
- Marketing Strategy
- Common Features in the Evolution of Products and Processes
- Process Technology
- Fermentation
- Product Recovery
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• Immobilized Cells
• Thienamycin Purification
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• Nocardicins
• Introduction
• Production of Nocardicin A
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• Streptomycin
• Neomycin, Paromomycin, Ribostamycin and Butirosin
• Gentamicin, Micronomicin and Sisomicin
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• Mutasynthesis
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Niir Project Consultancy Services (NPCS) can provide Technology Book on **Production of Biotechnology Based Bulk Drugs** (Penicillins, Genetics, Solvent Extraction, Aminoglycoside, Antibiotics, Tylosin, Peptide Antibiotics, Cephalosporins, Lincomycin, Anticancer Agents, Siderophores, Steroid Fermentations, Products From Recombinant DNA, Cake-Extraction Process, Split Process, Mycobactin, Hydroxamates, Therapeutic Enzymes, Fermentation, Metabolic Origins, Cysteine, Bioconversion, Carboxyl Activation, Biosynthetic Pathway, Metabolic Grid)

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- One of the leading reliable names in industrial world for providing the most comprehensive technical consulting services
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We at NPCS want to grow with you by providing solutions scale to suit your new operations and help you reduce risk and give a high return on application investments. We have successfully achieved top-notch quality standards with a high level of customer appreciation resulting in long lasting relation and large amount of referral work through technological breakthrough and innovative concepts. A large number of our Indian, Overseas and NRI Clients have appreciated our expertise for excellence which speaks volumes about our commitment and dedication to every client's success.
We bring deep, functional expertise, but are known for our holistic perspective: we capture value across boundaries and between the silos of any organization. We have proven a multiplier effect from optimizing the sum of the parts, not just the individual pieces. We actively encourage a culture of innovation, which facilitates the development of new technologies and ensures a high quality product.
What do we offer?

- Project Identification
- Detailed Project Reports/Pre-feasibility Reports
- Business Plan
- Industry Trends
- Market Research Reports
- Technology Books and Directory
- Databases on CD-ROM
- Laboratory Testing Services
- Turnkey Project Consultancy/Solutions
- Entrepreneur India (An Industrial Monthly Journal)
<table>
<thead>
<tr>
<th>How are we different?</th>
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<tbody>
<tr>
<td><em>We have two decades long experience in project consultancy and market research field.</em></td>
</tr>
<tr>
<td><em>We empower our customers with the prerequisite know-how to take sound business decisions.</em></td>
</tr>
<tr>
<td><em>We help catalyze business growth by providing distinctive and profound market analysis.</em></td>
</tr>
<tr>
<td><em>We serve a wide array of customers, from individual entrepreneurs to Corporations and Foreign Investors.</em></td>
</tr>
<tr>
<td><em>We use authentic &amp; reliable sources to ensure business precision.</em></td>
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</table>
Our Approach

- Requirement collection
- Thorough analysis of the project
- Economic feasibility study of the Project
- Market potential survey/research
- Report Compilation

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Who do we serve?

- Public-sector Companies
- Corporates
- Government Undertakings
- Individual Entrepreneurs
- NRI’s
- Foreign Investors
- Non-profit Organizations, NBFC’s
- Educational Institutions
- Embassies & Consulates
- Consultancies
- Industry / trade associations
Sectors We Cover

- Ayurvedic And Herbal Medicines, Herbal Cosmetics
- Alcoholic And Non Alcoholic Beverages, Drinks
- Adhesives, Industrial Adhesive, Sealants, Glues, Gum & Resin
- Activated Carbon & Activated Charcoal
- Aluminium And Aluminium Extrusion Profiles & Sections,
- Bio-fertilizers And Biotechnology
- Breakfast Snacks And Cereal Food
- Bicycle Tyres & Tubes, Bicycle Parts, Bicycle Assembling
Sectors We Cover

- Bamboo And Cane Based Projects
- Building Materials And Construction Projects
- Biodegradable & Bioplastic Based Projects
- Chemicals (Organic And Inorganic)
- Confectionery, Bakery/Baking And Other Food
- Cereal Processing
- Coconut And Coconut Based Products
- Cold Storage For Fruits & Vegetables
- Coal & Coal Byproduct
Sectors We Cover  cont...

- Copper & Copper Based Projects
- Dairy/Milk Processing
- Disinfectants, Pesticides, Insecticides, Mosquito Repellents,
- Electrical, Electronic And Computer based Projects
- Essential Oils, Oils & Fats And Allied
- Engineering Goods
- Fibre Glass & Float Glass
- Fast Moving Consumer Goods
- Food, Bakery, Agro Processing

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Sectors We Cover  cont...

- Fruits & Vegetables Processing
- Ferro Alloys Based Projects
- Fertilizers & Biofertilizers
- Ginger & Ginger Based Projects
- Herbs And Medicinal Cultivation And Jatropha (Biofuel)
- Hotel & Hospitality Projects
- Hospital Based Projects
- Herbal Based Projects
- Inks, Stationery And Export Industries
Sectors We Cover

- Infrastructure Projects
- Jute & Jute Based Products
- Leather And Leather Based Projects
- Leisure & Entertainment Based Projects
- Livestock Farming Of Birds & Animals
- Minerals And Minerals
- Maize Processing (Wet Milling) & Maize Based Projects
- Medical Plastics, Disposables Plastic Syringe, Blood Bags
- Organic Farming, Neem Products Etc.
Sectors We Cover cont...

- Paints, Pigments, Varnish & Lacquer
- Paper And Paper Board, Paper Recycling Projects
- Printing Inks
- Packaging Based Projects
- Perfumes, Cosmetics And Flavours
- Power Generation Based Projects & Renewable Energy Based Projects
- Pharmaceuticals And Drugs
- Plantations, Farming And Cultivations
- Plastic Film, Plastic Waste And Plastic Compounds
- Plastic, PVC, PET, HDPE, LDPE Etc.

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- Potato And Potato Based Projects
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- Soaps And Detergents
- Stationary Products
- Spices And Snacks Food
- Steel & Steel Products
- Textile Auxiliary And Chemicals
Sectors We Cover

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- Textiles And Readymade Garments
- Waste Management & Recycling
- Wood & Wood Products
- Water Industry (Packaged Drinking Water & Mineral Water)
- Wire & Cable
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