

# Biotech & Pharmaceutical Handbook

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Pharmaceutical industry has close linkages with imports of material and technology or processes know how and therefore with international economics. Modern pharmaceutical manufacturing techniques frequently rely upon biotechnology. The emergence of biotechnology over the past several decades has transformed the drug business and ushered in a host of new participants and several novel business models. Biotechnology (Biotech) 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. Modern use of similar terms includes genetic engineering as well as cell and tissue culture technologies. The concept encompasses a wide range of procedures (and history) for modifying living organisms according to human purposes, going back to domestication of animals, cultivation of plants, and improvements to these through breeding programs that employ artificial selection and hybridization. As understanding of biological systems has forged ahead, pharmaceutical companies have made increasing use of biotechnology in discovering and manufacturing new medicines. Biotechnology helps the pharmaceutical industry to develop new products, new processes, methods and services and to improve existing ones. Drug & pharmaceutical industry is one of the basic industries in India. Recent moves in globalisation and liberalisation have affected this industry perhaps the highest.

Modern biotechnology can be used to manufacture existing medicines relatively easily and cheaply. The first genetically engineered products were medicines designed to treat human diseases. To cite one example, in 1978 Genentech developed synthetic humanized insulin by joining its gene with a plasmid vector inserted into the bacterium *Escherichia coli*. The domestic pharmaceutical industry could attain a size of USD 25 bn (Rs 1200 bn) by focusing on two areas: first, innovation-led research, development and new drug discoveries; and second, information technology-led remote sales and marketing. Incidentally, according to another report by Associated Chamber of Commerce (ASSOCHAM) in India, the market is estimated to grow to more modest level of USD 9.5 bn.

India has the world's third largest active pharmaceutical ingredients (API) for the industry valued at a little less than USD 2 bn. Top 5 API producers account for approximately 6.5 %. The leading APIs are anti-infective, gastrointestinal, cardiovascular and respiratory drugs. The Chemical Pharmaceutical Generic Association (CPA) projects that India's share of the world API market will grow by 10.5% as patented blockbuster drugs lose their patent protection. The CPA also expects that the domestic Indian market for APIs, both generic and branded, will rise from USD 755 mn to USD 1.9. Indian pharmaceutical companies now supply nearly all the country's demand for formulations and nearly 70% of its demand for bulk drugs. The Indian firms produce nearly 60,000 generic brands in 60 therapeutic categories and between 350 and 400 bulk drugs. India's drug market consists mainly of second and third generation drugs no longer subject to patent protection in the developed world.

The content of the book includes information about bio-tech and pharmaceuticals. The major contents of this book are project profiles of projects like enzymes, antibiotics, bio fertilizer, insulin and growth hormone, aqua culture, floriculture, tissue culture, bulk drug intermediate.

Project profile contains information like introduction, manufacturing process, process flow sheet, uses and applications, suppliers of raw materials, suppliers of plant and machinery, cost analysis.

This book is very useful for new entrepreneurs, technical institutions, existing units and technocrats.

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5. Aqua Culture
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