3.3.3. Number of books and chapters published in edited volumes/books during year (2022-2023)

Ans.: 10 books and chapters published in AY (2022-2023)

INDEX

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	National / International	Year of publication	ISBN/ISSN number	Page No.
1	Dr. Veena S. More	Extremozymes and Their Industrial Applications	Molecular adaptation in proteins and enzymes produced by extremophilic microorganisms	International	2022	978-0-323-90274-8	3
2	Dr. Veena S. More	Optimization of Sustainable Enzymes Production	Optimization of Fermentation Process: Influence on Industrial Production of Enzymes	International	2022	9781003292333	4
3	Dr. Veena S. More	Optimization of Sustainable Enzymes Production	Reforming Process Optimization of Enzyme Production Using Artificial Intelligence and Machine Learning	International	2022	9781003292333	5
4	Dr. Veena S. More	Value-Addition in Beverages through Enzyme Technology	Use of enzymes in sports and energy drinks	International	2023	978-0-323-85683-6	6
5	Dr. Veena S. More	Enzyme technology in value addition of dairy and milk production,	Enzyme technology in value addition of dairy and milk production	International	2023	978-0-323-85683-6	7
6	Dr. Veena S. More	Biotechnology of Microbial Enzymes: Production, Biocatalysis, and Industrial Applications	Carbohydrases: a class of allpervasive industrial biocatalysts	International	2023	978-0-443-19059-9	8
7	Dr. Veena S. More	Biotechnology of Microbial Enzymes: Production, Biocatalysis, and Industrial Applications	Microbial enzymes used in textile industry	International	2023	978-0-443-19059-9	9
8	Dr. G. Raghavendra	Solar energy and renewable energy challenges for sustainable environment	----------	International	2022	978-93-5625-576-0	10 – 11

Sl. No.	Name of the teacher	Title of the book/chapters published	Title of the paper	National / International	Year of publication	ISBN/ISSN number	Page No.
9	Dr. G. Raghavendra / Dr. Swetha G	Smart Grid Fundamentals	----------	International	2023	978-93-5757-082-4	12 – 13
10	Dr. Basavaraj Ganiger	Recent Advances in Hybrid & Electric Automotive Technologies, Lecture notes in Mechanical Engineering	Production of Cotton Seed Biodiesel and Its Usage in a C.I.Engine with Methyl Ester and Al2O3 Additives	International	2022	978-981-19-2093-6	14 – 15

Extremozymes and Their Industrial Applications
2022, Pages 205-230

Chapter 7 - Molecular adaptations in proteins and enzymes produced by extremophilic microorganisms

Archana S. Rao [1], Ajay Nair [1], K. Nivetha [1], Veena S. More [2], K.S. Anantharaju [3], Sunil S. More [1]

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Abstract

Extremophiles have added new dimensions to the way we define life, constantly pushing the boundaries of conditions considered essential to be alive. These extreme beings not only survived but evolved to thrive under multiple extreme conditions such as temperatures, pH, salinity, radiation, humidity, etc. Despite being subjected to extensive years of research, much remains unclear in terms of the underlying mechanisms that help these elusive microorganisms, flourish under in optimum conditions. An understanding of molecular mechanisms behind microbial life at the extreme is also essential for their use in different industries. Most extremophiles are polyextremophilic (have ability to grow under multiple biotic and abiotic stresses). This indicate that to thrive in such stresses, their molecular and physiological features would have also been evolved accordingly. The DNA, RNA, ribozymes, and proteins thus produced, are certainly different from those found in mesophiles. Proteins, produced by them, in particular enzymes, also known as extremozymes, play a pivotal role in their survival. These extremozymes are also being used in various commercial sectors such as food, nutrition, health, agriculture, and environment. So, a comprehensive understanding of the underlying molecular mechanisms involved in their survival under extreme conditions is needed. This will also contribute in expanding their applicability in various industrial process. Thus in the chapter investigate the molecular mechanisms of extremophiles responsible for their survival under extreme conditions is discussed the production of extremozymes.

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The Cytotoxic Properties of Extreme Fungi's Bioactive Components—An Updated Metabolic and Omics Overview
2023, Life

Investigating Bio-Inspired Degradation of Toxic Dyes Using Potential Multi-Enzyme Producing Extremophiles
2023, Microorganisms

< Optimization of Sustainable Enzymes Production (https://www.taylorfrancis.com/books/mono/10.1201/9781003292333/optimization-sustainable-enzymes-production?refId=cfe54b58-0fea-4038-8e31-ffe1bae8575e&context=ubx)

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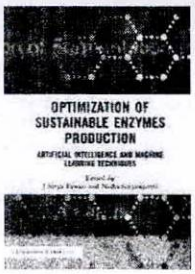
Chapter



Optimization of Fermentation Process

Influence on Industrial Production of Enzymes

By Ajay Nair (/search?contributorName=Ajay Nair&contributorRole=author&redirectFromPDP=true&context=ubx), Archana S. Rao (/search?contributorName=Archana S. Rao&contributorRole=author&redirectFromPDP=true&context=ubx), S. M. Veena (/search?contributorName=S. M. Veena&contributorRole=author&redirectFromPDP=true&context=ubx), Uday Muddapur (/search?contributorName=Uday Muddapur&contributorRole=author&redirectFromPDP=true&context=ubx), K. S. Anantharaju (/search?contributorName=K. S. Anantharaju&contributorRole=author&redirectFromPDP=true&context=ubx), Sunil S. More (/search?contributorName=Sunil S. More&contributorRole=author&redirectFromPDP=true&context=ubx)

Book Optimization of Sustainable Enzymes Production (https://www.taylorfrancis.com/books/mono/10.1201/9781003292333/optimization-sustainable-enzymes-production?refId=cfe54b58-0fea-4038-8e31-ffe1bae8575e&context=ubx)

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eBook ISBN	9781003292333

ABSTRACT

< Previous Chapter (chapters/edit/10.1201/9781003292333-2/applications-industrially-important-enzymes-monalisa-padhan-sushri-priyadarshini-panda?context=ubx)

Next Chapter > (chapters/edit/10.1201/9781003292333-4/reforming-process-optimization-enzyme-production-using-artificial-intelligence-machine-learning-rajeev-kumar-ajay-nair-archana-rao-veena-uday-muddapur-anantharaju-sunil?context=ubx)

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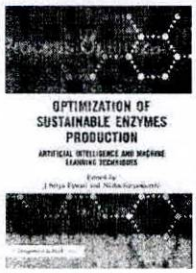
Chapter



Reforming Process Optimization of Enzyme Production Using Artificial Intelligence and Machine Learning

By Rajeev Kumar (/search?contributorName=Rajeev Kumar&contributorRole=author&redirectFromPDP=true&context=ubx), Ajay Nair (/search?contributorName=Ajay Nair&contributorRole=author&redirectFromPDP=true&context=ubx), Archana S. Rao (/search?contributorName=Archana S. Rao&contributorRole=author&redirectFromPDP=true&context=ubx), S. M. Veena (/search?contributorName=S. M. Veena&contributorRole=author&redirectFromPDP=true&context=ubx), Uday Muddapur (/search?contributorName=Uday Muddapur&contributorRole=author&redirectFromPDP=true&context=ubx), K. S. Anantharaju (/search?contributorName=K. S. Anantharaju&contributorRole=author&redirectFromPDP=true&context=ubx), Sunil S. More (/search?contributorName=Sunil S. More&contributorRole=author&redirectFromPDP=true&context=ubx)

Book Optimization of Sustainable Enzymes Production (https://www.taylorfrancis.com/books/mono/10.1201/9781003292333/optimization-sustainable-enzymes-production?refId=eac5a437-6b46-48ab-8207-5599dc376482&context=ubx)

Edition	1st Edition
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Imprint	Chapman and Hall/CRC
Pages	23
eBook ISBN	9781003292333

ABSTRACT

< Previous Chapter (chapters/edit/10.1201/9781003292333-3/optimization-fermentation-process-ajay-nair-archana-rao-veena-uday-muddapur-anantharaju-sunil?ontext=ubx)

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ScienceDirect

Value-Addition in Beverages through Enzyme Technology

2023, Pages 125-138

Chapter 8 - Use of enzymes in sports and energy drinks

Ajay Nair [a], Archana S. Rao [a], Veena S. More [b], Anantharaju Kurupalya Shivaram [c], Sunil S. More [a]

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https://doi.org/10.1016/B978-0-323-85683-6.00009-0

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Abstract

Enzymes have played crucial role in the production, fortification and preservation of food and beverages; one that is economical and eco-friendly. Most modern-day nutritional supplements used by athletes focus primarily on, enhancing physical endurance, maximizing nutrient absorption, and mitigating injuries induced in sports. Inclusion of bioactive compounds, such as enzymes, has dramatically improved the aforesaid attributes in supplements. Whey supplements fortified with proteolytic enzymes have been shown to enhance the bio-absorption of proteins by hydrolyzing into its basal amino acids. These supplements also contain Lactases for breaking down sugars for consumers who are lactose intolerant. Energy drinks used by athletes contain blends of ornithine alpha-ketoglutarate and aminotransferases that help in replenishing lost arginine pools during intense physical activity. Conversion of arginine to nitrous oxide in the cells has been directly related to increased blood flow to the muscles for enhanced workout and functioning. Amylases in energy drinks have been shown to restock the lost muscle glycogen by helping the conversion of complex carbohydrates to simple sugars, such as glucose. However, most of these enzymes are present in proprietary blends, with very less information on the ingredients. This chapter therefore discusses elaborately on numerous other enzymes, and their potential applications in sports supplementation.

Value-Addition in Beverages through Enzyme Technology
2023, Pages 77-96

Chapter 5 - Enzyme technology in value addition of dairy and milk production

Prakruti Acharya [a], Aneesa Fasim [a], Veena S. More [b], Anantharaju Kurupalya Shivaram [c], Sunil S. More [a]

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Abstract

Dairy products are a vital part of human nutrition as they promote growth and have many health benefits. People across the globe are switching to healthier lifestyles and the demand for wholesome, and nutritious dairy products without compromising on taste and texture is increasing drastically. Enzyme technology has played a huge role in improving the quality as well as value addition of milk and milk products. They have become a requisite for the production of different types of cheeses, yogurt, and they are also used as a dietary supplement or to elongate the shelf life of dairy products. Various types of proteases are used to curtail the allergic properties of the milk proteins and along with lipases they also aid in the improvement of cheese flavoring and fastening the cheese ripening process. Chymosin, lactase, galactosidase are few other enzymes that are commonly used in the dairy industry. Increasing milk production by including enzymes in the cattle feed is currently the focus of dairy research. With the increased production of dairy products, a significant amount of waste such as whey, wastewater, and dairy sludge is generated. However, whey proteins are known to possess antihypercholesteremic, anticancer, immunomodulatory, emulsifying, gelling, and flavor development properties. Thus, whey can be processed with the help of enzymes and used. Dairy wastewater and sludge pose a serious threat to the environment as they display high nutrient amount, biological oxygen demand (BOD), and chemical oxygen demand (COD) but enzymes can be readily used in the eco-friendly disposal of these wastes. So, the present chapter will not only emphasize the use of the enzyme technology involved in the value addition of milk and dairy products but will also give a detailed overview of the currently available waste management approaches and alternatives in the recycling or disposal of dairy waste.

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ScienceDirect

Biotechnology of Microbial Enzymes (Second Edition)

Production, Biocatalysis, and Industrial Applications

2023, Pages 497-523

Chapter 19 - Carbohydrases: a class of all-pervasive industrial biocatalysts

Archana S. Rao [1], Ajay Nair [1], Hima A. Salu [1], K.R. Pooja [1], Nandini Amrutha Nandyal [1], Venkatesh S. Joshi [1], Veena S. More [2], Niyonzima Francois [3], K.S. Ananthraju [4], Sunil S. More [1]

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Abstract

Carbohydrases represent a group of most sought-after enzymes spanning a wide range in the industrial sector. Carbohydrases are enzymes capable of hydrolyzing complex carbohydrates into simple sugars. Enzymes such as maltases, amylases, xylanases, mannases, glucanases, etc., have been profoundly used in several industrial steps offering multifaceted benefits. Industries such as food and detergents use these enzymes as potent catalysts and ingredients in their productions. Alternate novel applications also include using carbohydrases in exogenous forms to improve the digestibility and nutritional availability of plant-based foods in pisciculture. Leather processing has been traditionally performed with a barrage of potentially hazardous chemicals. Carbohydrases have presented themselves here as greener alternatives by either eliminating the use of these chemicals or by partly replacing them. This approach proved to be ecofriendly and aided in reducing the net process duration. The primary source for almost all industrial carbohydrases is microbial in origin. All major groups such as bacteria, yeasts, and fungi have demonstrated optimal consistency in producing these enzymes. Short life span and near negligible ambient effects make microbes ideal production houses. Despite the broad-spectrum applications and the ease of synthesis, the production costs and active lifetime of the biocatalysts have been an issue of concern in recent times. Genetically modified enzymes via recombinant DNA technology have proved fruitful in meeting industrial demands while cutting down on the overall cost of production. In the present chapter, the most important studies on the origin and potential applications of carbohydrases are extensively reviewed.

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Biotechnology of Microbial Enzymes (Second Edition)

Production, Biocatalysis, and Industrial Applications

2023, Pages 649-684

Chapter 23 - Microbial enzymes used in textile industry

Francois N. Niyonzima [1], Veena S. More [2], Florien Nsanganwimana [1], Archana S. Rao [3], Ajay Nair [3], K.S. Anantharaju [4], Sunil S. More [3]

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Abstract

Microbial enzymes are the biological catalysts owing to their capability to favor more efficiently and fast industrial reactions. Microorganisms produce enzymes utilized in textile industries more cost-effectively than animals and plants. The most commonly utilized enzymes in textile industries are amylases, peroxidases, catalases, cellulases, and laccases. However, ligninases, collagenases, lipases, proteases, pectinases, and nitrilases are also used, but to less extent. They remove the starchy soils, degrade excess hydrogen peroxide and lignin, and take part in desizing, scouring, bleaching, garment washing, denim washing, dyeing and denim, and biofinishing. Chemicals used in the textile industries are expensive and toxic, cause environmental pollution, and thus are dangerous to the worldwide population's health. Enzymes are currently used in textile industries as they are nontoxic, reduce energy and water used, are cost-effective, lead to the best final products, remove/decolorize dyes in the textile effluents, and thus reduce environmental pollution. In addition, the use of eco-friendly enzymes in textile industries may lead to the manufacture of textile products with good characteristics that may be sold and boost the economy of various countries, including underdevelopment countries. One of the objectives of this chapter is to show how to produce inexpensively microbial enzymes used in textile industries in considerable amounts to replace optimally the chemicals used in them. The isolation and identification of microorganisms able to produce significant amounts of textile enzymes are highlighted with emphasis on genetic materials manipulation.

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Solar Energy, Green Energy and Renewable Energy Challenges for Sustainable Environment

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Mr. P. Ravi Kumar
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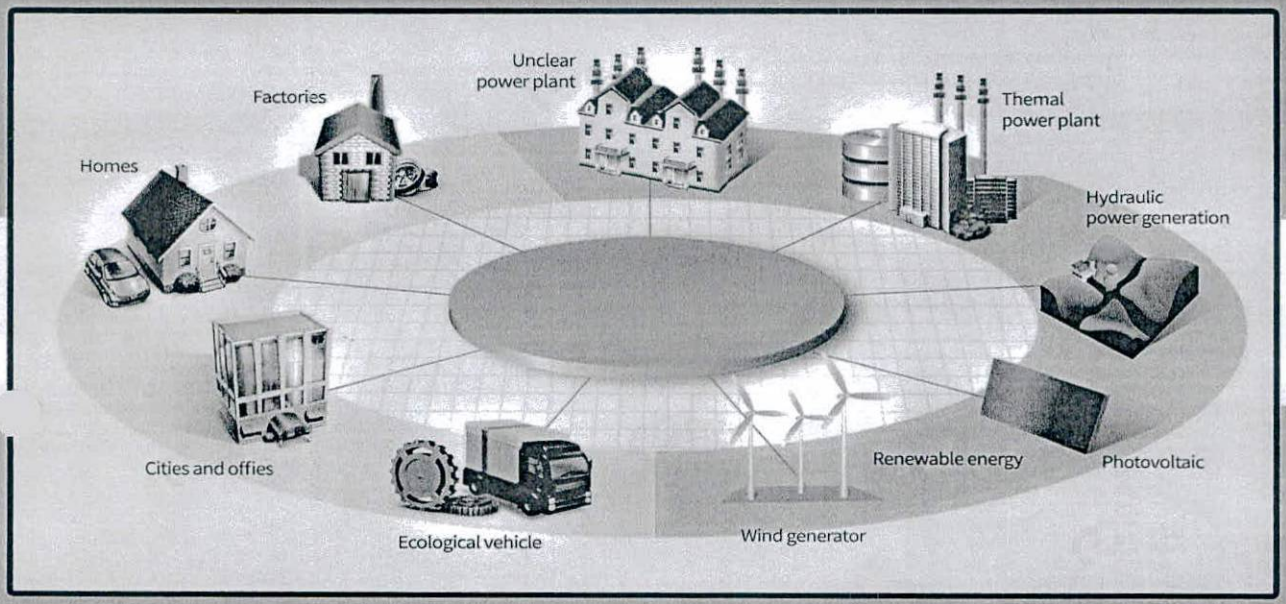

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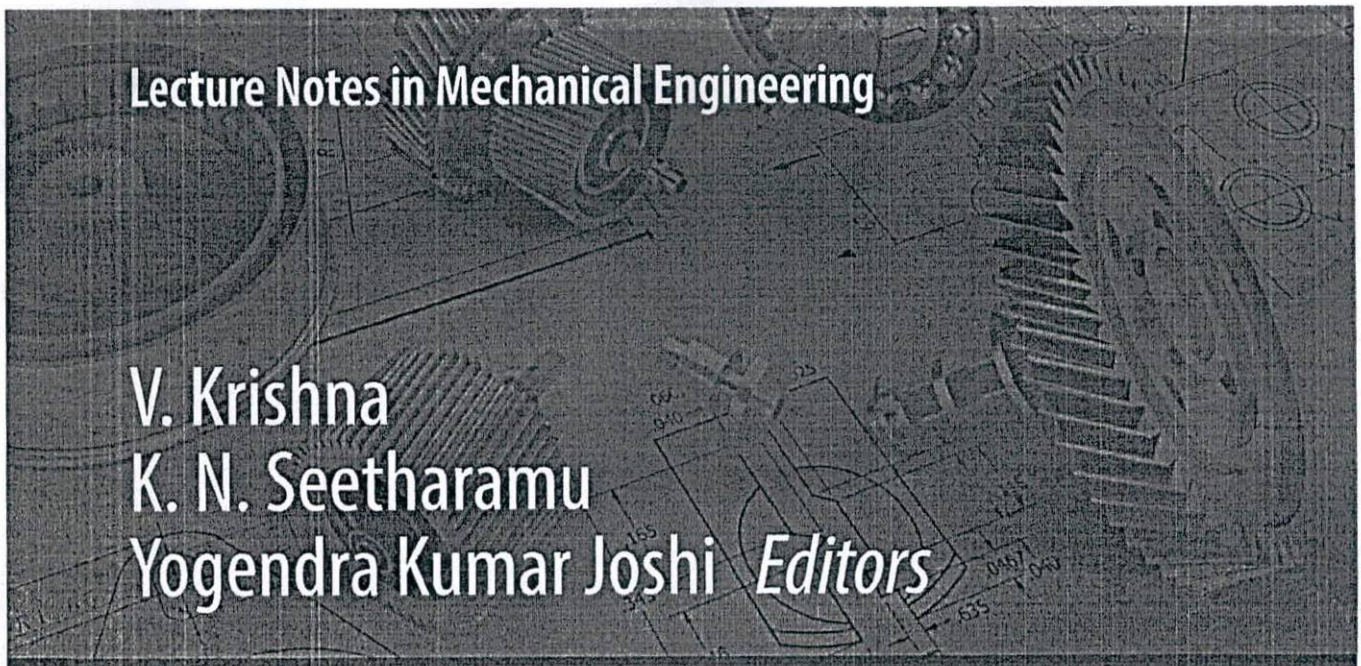

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Production of Cotton Seed Biodiesel and Its Usage in a C I Engine with Methyl Ester and $A1_2O_3$ Additives

Basavaraj Ganiger and B. Yuvaraj

Abstract In this work, cotton seed crude oil was obtained from the dried seeds using mechanical device called expeller. The free fatty acid (FFA) of cotton seed crude oil was found higher so it was subjected to double stage transesterification process. The maximum yield of cotton seed biodiesel was found with optimized variables; catalytic concentration, molar ratio and reaction time. In addition to pure biodiesel usage the methyl ester (neat diesel) and Al_2O_3 nano particle additives were used to blend the biodiesel in different proportions. The properties of the blend made of 20% cotton seed biodiesel and 80% methyl ester and Al_2O_3 nanoparticles were found close to pure diesel properties. A single cylinder, four strokes diesel engine was tested at different loads by maintaining constant speed with cotton seed biodiesel .nd its blends with methyl ester and Al_2O_3. It is observed that comparatively higher brake thermal efficiency (BTE), lesser brake specific fuel consumption (BSFC) and higher exhaust gas temperature (EGT) for blend made of 20% cotton seed biodiesel and 80% methyl ester and Al_2O_3 nanoparticles.

Keywords Cotton seed · Mechanical expeller · Trans-esterification process · Methyl ester · Al_2O_3 · BTE · BSFC & EGT

Abbreviations

BSFC	Brake specific fuel consumption
BP	Brake power
BTE	Brake thermal efficiency
B20	20% Biodiesel
B20A30	20% Biodiesel with 30 ppm Nano particles

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