

BIOVOICE

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ANNUAL 2024 | Volume No. 5



Exploring Opportunities with
our R&D LAB Pg no. 10

Sea Water
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Our Mission

To continue to set the bar high as an industry leader in creating unique, eco-friendly enzymes formulations for industrial applications. We are committed to providing high-quality products with international standards to our esteemed clients and prioritising environmental concerns while carrying out our business and manufacturing activities.

Our Vision

To be the leading biotechnology company in the world in the field of eco-friendly enzymes formulations for industrial applications.

Our Values

These are the guiding force behind every action we take.

- I INNOVATION
- N NATURE
- F FOCUS
- I INTEGRITY
- N NOVEL
- I INCLUSION
- T TEAMWORK
- A AGILITY



Corporate Profile

Infinita Biotech Pvt. Ltd., founded in 2015, is a leading Indian multidivisional biotechnology company engaged in manufacturing eco-friendly enzymatic solutions for a variety of industrial applications in India as well as overseas.

Our company comes with technical experience professionals of over 30 years in the field of industrial enzymes. Our leadership and extensive expertise in the domain of biotechnology has enabled us to grow with continued success. This can be attributed to our policy of providing innovative, effective and high-quality products and solutions to meet specific customer needs with continuous research and development. The desire for cutting-edge innovation is defined by our best-in-class research laboratories and state-of-the-art manufacturing facilities. Our production mechanisms are handled by well-qualified and highly motivated personnel and follow stringent control protocols and in-process quality assurance procedures. Our distinctive delivery processes are backed by a strong marketing and distribution network, which is strengthened by the relationship we share with our suppliers and dealers.

We strive to continuously improve our practices and as a part of this process we have acquired certifications and licences like ISO 9001:2015 through TUV India, FSSAI central licence, ISO 22000:2018, HALAL, Kosher, Oeko-Tex Eco Passport, ZED Bronze and our Research and Development Centre has been recognized by the Department of Scientific and Industrial Research (DSIR), Ministry of Science and Technology, Government of India.

Our concern for the environment is at the centre of everything we do. As a result, our products provide multiple benefits that cannot be obtained through traditional chemicals and processes such as superior quality, lower production cost, less wastage and reduced energy consumption.

As of today, our clients belong to a wide range of sectors like

BIODIESEL
PULP & PAPER
OIL FIELDS
FRUIT JUICE AND WINE
MALT
DETERGENT
DISINFECTANT
STARCH
AGRICULTURE
BREWERY AND MALT
DISTILLERY
COSMETICS
SECOND GENERATION BIOFUELS
CRUDE OIL SPILL REMEDIATION
DISINFECTANT
OIL FIELDS
TEXTILE
SUGAR
SEA WATER REMEDIATION
OIL FIELDS
TEXTILE
ANIMAL FEED
WASTE - WATER TREATMENT
PHARMACEUTICALS
PULP AND PAPER
CELLULOSIC ETHANOL
SOIL STABILIZATION
GEL HYDROLYSIS
CRUDE OIL
LEATHER
COSMETICS
CRUDE OIL EXTRACTION

The presence of
Infinita around the World



55+ COUNTRIES

200+ PRODUCTS

750+ CLIENTS
WORLDWIDE

30+ YEARS TECHNICAL
EXPERTISE

Message From The Managing Director Adarsh Desai

*Wishing each one of you a very
Happy and a Prosperous New Year!*

In our previous BIOVOICE edition, we had estimated a minimum growth of 50% in the FY 2023 - 24 from that of 2022 - 23. I am proud to announce that we achieved a triple digit growth of more than 120% in the FY 2023 - 24.

Our footprint across the globe in terms of exports has now reached more than 55 countries. Not only have our territories increased but we have been able to develop much stronger and broader supply chain partners in different countries right from Europe to South America to Asia to Africa. Our stronger distribution partners have helped us penetrate different markets with a wider line of products.

This year became more special as we received the coveted '**Outstanding Startup**' of the Year Award from **FGI (Federation of Gujarat Industries)**, which is a recognised Chamber of Commerce founded in 1918. The award was conferred to us by Shri Suresh Prabhu, Hon'ble Former Union Minister of Civil Aviation, Railways, Commerce & Industry, Government of India.

This year also marked a significant increase in our participation in Exhibitions across the globe. Along with being Speakers at various leading events, our company exhibited and participated in key Exhibitions and Conferences around the world in different industries right from Home & Personal Care to Sugar & Ethanol to Food to Oil Spills Response to Textile.

Having R&D at its core, our team has expanded on this front and significant developments have been on our flagship R&D projects of developing Enzymes to degrade Plastic and to produce 2nd Generation Biofuels.





As a company, we have been investing regularly to become more and more compliant with international norms and attain the highest level of Quality Certifications.

We attained the Oeko - Tex Eco Passport ZDHC Level 3 Certification this year for our range of Textile Enzymes which is world's leading Certification for Sustainability and Quality in the field of Textiles. Our Textile division has reached great heights in this year with substantial increase in the volumes of Enzymes sold and new products developed.

Our Infinita Biotech family is growing year by year and we have hit a century. The year was filled with different events and celebrations. Every festival is celebrated at Infinita Biotech with great passion. Events and celebrations hold a high place at Infinita as it not only helps in team building but also it becomes a means for each of our family members to express themselves.

We now enter our 10th year and we're well geared up for this milestone year. We have set ambitious goals for this year and the whole team is highly motivated to achieve them.

From the bottom of my heart, I thank my whole team, our clients, our suppliers and all our stakeholders who have led us to the place we're at right now. We're not going to stop and its only onwards and upwards from here!



BIOSCOPE

Articles



Exploring Opportunities with our R&D lab

Contributed by:
Milind Kulkarni
President Technical

Striving for innovation has always been one of the core objectives at Infinita Biotech Pvt. Ltd. This pertains to innovation not only in our customized enzyme products but also in the way they are produced or tested. Enzymes are proteinaceous biological catalysts that can have diverse applications in various fields, including food, feed, agriculture, nutraceuticals, cosmetics, pharmaceuticals, therapeutics, textiles, detergents, distilleries, sugar processing, bioremediation, soil and water treatment. The main advantage of using enzymes is that they are natural, work under mild conditions and are thus helpful in controlling the carbon footprint. They are required in trace quantities and can be reused. However, specific conditions like pH and temperature are needed for the enzymes to show their complete effect.

Enzymes are produced by all living organisms. However, for industrial applications they can be sourced mainly from microbes and plants. Microbes produce a wide spectrum of enzymes depending on the environment where they grow. Among microbes, bacteria and fungi are the major enzyme producers. Bacterial genera like *Bacillus*, *Pseudomonas* and fungal genera like *Aspergillus*, *Trichoderma*, *Rhizopus*, *Penicillium* have been used since long for enzyme production on a commercial scale. Enzymes like proteases, amylase, lipase, cellulases can also be sourced from plants. Plant proteases like papain, bromelain and ficin have multiple applications in food, cosmetics, and nutraceuticals.

When different enzymes are blended together with suitable additives, they can catalyse specific reactions in a sequential manner thus producing desirable results

with respect to texture, particle size, taste, composition, color, odor, solubility/ miscibility, flow rate, density and other properties. Immobilized enzymes provide additional advantages like reusability, stability and easier product separation.

In the food industry, enzymes can be used to achieve desired properties in bakery products with respect to flour and dough texture, fluffiness, viscosity, stretching, shear. For animal feed, certain enzymes can help in releasing trapped nutrients (like phosphorus, calcium) thus making them readily available to the animal. Some enzymes can be used to treat the lignocellulosic biomass present in crop stubble while others can be used in biogas plants. Enzymes that help with digestion or relieve inflammation are commonly used in nutraceuticals.



Starch and cellulose degrading enzymes find application in textile processing while many such enzymes are added in detergents to help with stain removal. A large number of enzymes can act on glycosidic bonds in sugars, with some being thermostable and degrading the polysaccharides, some targeting the oligosaccharides and disaccharides thus releasing monosaccharides and some of them isomerising or oxidising the monosaccharides. All such enzymes acting on sugars find application in distilleries, breweries and sugar processing industries. Certain enzymes can help with breakdown of hydrocarbons and are thus used in bioremediation. Some enzymes can improve soil binding while few other enzymes can help with controlling the COD (chemical oxygen demand) of effluent water.



Our R&D lab is now equipped to undertake such challenges that would help us dive deeper into the field of enzymes and their applications. Based on our projects concerning the environment, we have also received recognition from **DSIR** (Department of Scientific and Industrial Research). Infinita Biotech Pvt. Ltd. also won the **Startup of the Year Award** at the National Startup Awards 2022, organized by Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, Government of India, in the Environment Category with the subcategory of Waste to Value.

What we are capable of:

To begin with, the R&D labs at Infinita Biotech Pvt Ltd can develop industrially relevant microorganisms (by natural screening and selection in the lab) that produce desired enzymes. Such producers can be sourced from

environments having the corresponding substrate. The R&D microlab facility is such that isolation, screening, characterization can be performed for industrially important microorganisms. Screening involves detection of specific microorganisms based on certain predetermined features. Isolation involves separating the various microorganisms from each other when they are thriving all together in a particular environment. This allows the formation of a pure culture of any desired microorganism thus facilitating its detailed study. Generally, screening and isolation are undertaken together or one after the other and once both are completed satisfactorily, further studies like biochemical or genetic characterization can be started. This initial data is crucial in setting up the future course of action, i.e., whether to harness the strengths of the natural microbes only or to augment them with any in vitro

modifications. This lab is equipped with provision for media preparation, sterilization, microbial culture isolation, inoculation, growth, culture maintenance, preservation and decontamination. This lab can also undertake strain improvement by mutagenesis if required.

To appreciate what makes these microorganisms industrially relevant, we need to dive further and look into their genetic blueprint. This is where the molecular biology lab can further improve our understanding of these industrially relevant microbes. It is equipped to undertake genomic DNA/ RNA isolation, DNA/ RNA visualization, amplification and modifications of such DNA/ RNA. It also houses the facility to separate, concentrate and observe the desired protein/ enzyme fractions. With the molecular biology facility, it is possible to decipher why and how a particular microorganism produces a certain protein/ enzyme.

Further analytical studies with the enzymes and their effect on the specific substrates and resultant products can be undertaken in the Instrument lab. The instrument lab is equipped with instruments like HPLC to test and optimize our formulations with respect to the sugars and other metabolites released from various feedstocks. The HPLC has two types of detectors and multiple types of columns, thus allowing to study in real time the progress of various enzyme catalysed reactions. Here, it is possible to track the same process in presence of control formulations and our test enzyme formulations.



The lab scale fermenters are used for further parameter and process optimization aimed at production of desired enzymes. These submerged stirred tank bioreactors with provision for sterile air supply and mixing are well suited to support microbial growth and enzyme production. There is provision for in process testing of the growth and enzyme production and both batch and fed batch modes can be operated. This can be followed by cell separation/ filtration/ concentration of the enzyme rich fraction using various filters and membranes. For cell separation, centrifugation can be used. Alternatively, microfiltration can also be applied. If plant origin enzymes are being extracted, then coarse forms of filtration like filter press may be required. For further purification/ concentration of desired proteins, ultrafiltration with membranes having specific molecular weight cut off can be used. Here, it becomes necessary to optimize the fold



purification and diafiltration washes. Care should be taken to maintain low temperatures during all such unit operations since most enzymes are temperature sensitive. The enzyme rich fraction can then be further improved in terms of enzyme activity and shelf life by drying it. However the drying temperature, duration, flow rate, pressure and added filler have to be carefully optimised in order to avoid any enzyme denaturation, to have desirable particle size and permissible moisture content. Once dried, these enzymes need to be tested for their activity throughout the storage period to ascertain their shelf life. At IBPL, we continuously strive to optimize methods that deliver reproducible results with minimal impact on the ecosystem.

Chemical additives are commonly used to stabilize soft and/or wet fine grained soils before they are used to build upon or used for embankment. By stabilization process, the soil plasticity is controlled, soil workability, its compressive strength and load bearing properties get improved. This is due to several chemical processes that occur in the presence of the stabilizer. By altering the physicochemical properties of soil, the stabilizer also ensures the preservation of macro structural integrity with minimal degradation even under extreme climatic conditions and loading during designed service period.



Lime stabilization is most widely used in several applications when local soil improvement is required. When used with fine-grained soils, lime causes decreased plasticity, increased workability, reduced swelling and shrinkage potential and increased strength. Soil stabilization and compaction is a process that is carried out before any road construction as well. It is mainly done for subgrade layers of soil. While inorganic chemicals like lime are widely used for this activity, certain enzyme formulations can also be helpful. This becomes a more ecofriendly approach. The soil testing facility at Infinita Biotech Pvt. Ltd. is equipped to study and compare soil strength, soil binding and compaction before and after treatment with our soil compacting enzyme formulations. This lab has such facilities that it can undertake various soil tests like dry density, moisture content, plasticity index, compaction and binding, grain size distribution and permeability.

Additionally, there is a facility to perform distillation after enzyme treatment, densitometric measurements and titrations.

What niche challenges have we attempted to address?

The Ministry of Earth Sciences (MoES) along with other ministries has started running an annual cleanliness campaign "**Swachh Sagar, Surakshit Sagar/Clean Coast Safe Sea**" along India's entire coastline from 2022. Two wastes that significantly affect coast cleanliness include crude oil spills and plastic wastes. One of our products provides an effective means for complete degradation of crude oil in water bodies or soil. When combined with additional processes like physical separation and coagulation, the process of oil removal using this product can be intensified, ensuring 80 to 90% oil removal.

We aim to center our research on addressing the plastic waste challenge. Commonly used plastics are not particularly susceptible to biodegradation in nature. The development of systems which employ microbes and enzymes for such plastic biodegradation hold the potential to address this challenge. The chief degradation products/ monomers thus obtained can be used to recycle the plastic polymers, thus reducing the dependence on fossil resources for making new plastics. Most of the plastic polymers are recalcitrant and enzymes degrading such plastic polymers are slow acting and find similarity with cutinases, tannases, esterases, lipases, hydroxylases, monooxygenases.

Yet another aspect of our interest is in the Government of India's **EBP (Ethanol Blended Petrol)** programme with a target of 20% blending by 2025. This initiative could have several benefits like reduced crude oil import, savings in



foreign exchange, CO2 emission reduction and crude oil substitution. Further, it could have a significant impact on distilleries and provide a boost to agriculture which can supply feedstocks for the ethanol production. These feedstocks need to be pretreated and hydrolysed to release free sugars that then undergo fermentation to produce ethanol. The type of feedstock available for ethanol production would depend on the geographical region. To generate maximum free sugars for ethanol production, it is essential to optimize the blend of enzymes specifically for hydrolysis of each type of feedstock/ lignocellulosic biomass. These enzymes are mostly plant cell wall degrading enzymes that can be applied to pretreated lignocellulosic biomass.

Thus through our R&D labs, we can now study, analyze and concentrate enzymes. Application trials of various enzyme formulations and strain improvement approaches can also be undertaken.

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Enzymes in the Textile Industry

Contributed by:
Manish Sharma
Asst. Manager - Marketing

Introduction

The textile industry is one of the largest and most influential sectors in the global economy, producing billions of garments and fabrics annually. It caters to the diverse needs of various markets, ranging from everyday wear to high-end fashion, while also playing a key role in industries such as home furnishings, automotive, and medical textiles. The textile sector, however, is also infamous for its significant environmental footprint. The industry contributes to pollution through the release of toxic chemicals, extensive water usage, and excessive energy consumption. Additionally, it plays a role in the depletion of natural resources, contributing to ecological degradation on a global scale.

The wet processing sector of the textile industry, including processes such as dyeing, bleaching, scouring, and finishing, is especially responsible for environmental damage. Traditional chemical treatments used in these processes are not only hazardous but also toxic, carcinogenic, and difficult to manage. These chemicals often seep into the environment, contaminating air, water, and soil. Furthermore, these processes consume vast amounts of water and energy, both of which are becoming increasingly scarce and valuable resources.

As environmental concerns mount and sustainability becomes a critical focus, the textile industry is actively seeking alternative solutions that are less harmful to the environment. One such promising solution lies in the use of enzymes, which are biological catalysts. Enzymes are naturally occurring proteins that accelerate specific chemical reactions, and in the textile industry, they offer

a more sustainable, eco-friendly, and efficient approach to textile processing. Enzymatic processing eliminates the need for toxic chemicals, reduces energy consumption, minimizes water usage, and enhances fabric quality. By utilizing enzymes in textile production, manufacturers can address the growing demand for more sustainable textiles while lowering their environmental footprint.

This article explores the growing role of enzymes in the textile industry, examining their benefits, applications, and how they are transforming textile manufacturing toward more sustainable practices.



Advantages of Enzymes in the Textile Industry



Enzymes offer numerous advantages, making them a compelling alternative to traditional chemical treatments in textile processing. Below are some of the key benefits of enzyme use in the industry.

1. Accelerates Reactions

Enzymes are highly efficient catalysts that speed up chemical reactions, often by factors of millions. They work by lowering the activation energy required for a reaction to occur, thereby increasing the reaction rate without being consumed in the process. This catalytic property allows for the processing of large amounts of material using relatively small quantities of enzymes, making them a cost-effective option in textile manufacturing.

In textile processing, enzymes accelerate critical steps such as desizing, scouring, bleaching, and dyeing, which traditionally take longer with chemical treatments. The faster processing times translate to reduced manufacturing costs, higher productivity, and improved efficiency. This can also help manufacturers meet tight production deadlines while minimizing waste and energy consumption.

2. Operates Under Milder Conditions

One of the standout advantages of enzymes is their ability to operate under milder conditions compared to traditional chemical processes. Enzymes can work effectively at lower temperatures and neutral or mildly acidic pH levels, reducing the need for high heat, extreme pH treatments, or the use of caustic chemicals. This property makes enzymatic treatments both energy-efficient and less harsh on the fabric, ensuring that textiles are not weakened, discolored, or otherwise damaged during processing.

Traditional textile chemical processes often require high temperatures (90–100°C) or harsh chemicals, which consume significant amounts of energy and water. Enzymes, by contrast, can catalyze reactions at temperatures as low as 30–60°C, leading to substantial energy savings, reduced water usage, and a smaller carbon footprint. The gentler conditions also help maintain fabric quality, preventing unnecessary wear or damage to delicate fibers like cotton, silk, or wool.

3. Alternative to Polluting Chemicals

One of the most significant benefits of enzymatic processing is its ability to replace harmful, polluting chemicals that are commonly used in traditional textile manufacturing. Many chemicals used in dyeing, bleaching, and finishing processes are toxic, carcinogenic, or difficult to remove, posing risks to workers, consumers, and the environment. For example, chlorine-based bleaches, heavy metals, and synthetic dyes often require intensive treatment to neutralize their toxic effects before disposal.

Enzymes offer an eco-friendly alternative because they are biodegradable, non-toxic, and do not generate hazardous by-products. For instance, Amylase enzymes used in desizing break down starch without leaving behind any toxic residues, and Pectinases used in scouring remove natural impurities from fibers like cotton without polluting the environment. By replacing chemical treatments with enzymes, the textile industry can significantly reduce its use of hazardous substances, mitigate health risks, and decrease pollution levels in water and air.

4. Specificity of Action

Enzymes are highly substrate-specific, meaning they act on particular types of molecules and have minimal impact on other components. This specificity is a crucial advantage in textile processing, where different types of fibers, such as cotton, silk, wool, and synthetics, require specific treatments to ensure quality without damaging the material.

For example, Amylase enzymes used in desizing are specific to starch, breaking down the sizing agent without affecting the cellulose structure of cotton. Similarly, Cellulase enzymes used in bio-polishing target cellulose fibers, enhancing the smoothness and softness of the fabric without causing unwanted degradation or weakening of the material. The specificity of enzymatic treatments ensures that only the desired reaction occurs, preserving the integrity and strength of the fabric, which is often a risk with traditional chemical treatments.

5. Ease of Control and Storage

Enzymes are relatively easy to control and store compared to many chemical treatments. Their activity can be regulated by adjusting conditions such as temperature, pH, and enzyme concentration, allowing textile manufacturers to fine-tune the process for optimal results. This flexibility makes enzymes an attractive choice for a range of textile processes, from pre-treatment to finishing.

Enzymes are also stable when stored in the right conditions, typically in powder or liquid form, and are less likely to cause side reactions or degradation over time. This makes them a safe and convenient option for textile manufacturers, ensuring consistent and reliable performance across various production batches.

6. Biodegradability

Enzymes are naturally biodegradable, which means they break down into harmless by-products after they complete their catalytic role. This is in stark contrast to the toxic, non-biodegradable chemicals traditionally used in textile processing, which can persist in the environment, requiring complex and costly waste treatment processes.

The biodegradability of enzymes is one of the key factors contributing to their sustainability in the textile industry. As they are broken down into natural components, enzymes do not contribute to long-term pollution or require disposal methods that harm ecosystems. This makes enzymatic treatments a crucial part of the textile industry's shift towards more sustainable and environmentally friendly practices.

7. Improves Fabric Quality

In addition to their environmental and operational benefits, enzymes improve the overall quality of the fabrics they are used to process. Enzymatic treatments like bio-polishing enhance fabric texture by removing surface fuzz, which can lead to pilling. Cellulase enzymes, for instance, are often used to treat cotton fabrics, leaving them smoother, softer, and with a more lustrous finish.

Enzymatic treatments can also improve fabric durability. By reducing the mechanical wear that often occurs in chemical processing, enzymes help to maintain the



integrity of fibers over time. Enzyme treatments also promote color brightness and uniformity, which enhances the aesthetic appeal of the final product.

Enzymes in Cotton Processing

Cotton, being one of the most widely used fibers in the textile industry, greatly benefits from enzymatic processing. Enzymes are used at various stages of cotton processing to improve efficiency, sustainability, and fabric quality.

1. Desizing

Desizing is the first crucial step in cotton processing, aimed at removing the starch-based sizing agents applied to cotton yarns during weaving to prevent breakage. Traditional desizing methods often involve



harsh chemicals, such as sodium hydroxide, which can weaken cotton fibers and require large amounts of water for rinsing. Enzymatic desizing, on the other hand, utilizes Amylase enzymes, which break down starch without harming the cotton fibers. This results in a more environmentally friendly process that reduces water and energy consumption while preserving the strength and quality of the fabric.

2. Scouring

Cotton fibers contain natural impurities such as pectins, waxes, and proteins, which must be removed during the scouring process to prepare the fabric for dyeing and finishing. Traditional scouring methods use strong alkaline chemicals, such as sodium hydroxide, which can be toxic and require significant amounts of water for rinsing. Enzymatic scouring, known as bio-scouring, uses Pectinases and Cellulases to break down these impurities in a more environmentally friendly manner. The bio-scouring process is conducted under neutral pH conditions, which helps preserve the cotton fiber's integrity while reducing the overall consumption of water and energy.

3. Biopolishing

Biopolishing is an enzymatic treatment designed to improve the appearance and texture of cotton fabrics. Over time, cotton fabrics develop fuzziness or surface protrusions, which can cause pilling and a rough texture.

Cellulase enzymes are used to remove these microfibrils, resulting in a smoother, softer, and more lustrous fabric. Biopolishing not only improves the fabric's tactile feel but also enhances its durability by preventing pilling, thus extending the fabric's useful life.

4. Biofading

Biofading is a process used to create a worn or faded look, especially in denim garments. Traditionally, denim is subjected to pumice stone washing, which abrades the fabric and removes indigo dye. While effective, this process can damage the fabric and is water-intensive. Enzymatic biofading, using Cellulase enzymes, provides a more controlled and sustainable alternative. The enzymes remove the indigo dye in a more uniform manner, reducing fabric damage and water consumption. This process also minimizes waste and ensures a more consistent look in the final product.

5. Decomposition of Hydrogen Peroxide

Hydrogen peroxide is commonly used as a bleaching agent for cotton fabrics to remove natural impurities and whiten the fabric. However, residual hydrogen peroxide can interfere with subsequent dyeing or finishing processes and may weaken the fabric. Catalase enzymes are employed to break down any remaining hydrogen peroxide, neutralizing it without causing harm to the fabric. This enzymatic breakdown reduces the need for additional rinsing steps, which conserves water and energy while lowering the environmental impact of chemical residues in effluent.

Enzymes in Other Textile Fibers

While cotton is the primary beneficiary of enzymatic processing, enzymes are also effective in treating other fibers, including silk, wool, and synthetic fibers.



1. Silk Degumming

Silk fibers are coated with sericin, a natural gum that must be removed to enhance the texture and luster of the fabric. Traditional degumming methods often use harsh alkaline treatments, which can damage the delicate silk fibers. Protease enzymes offer a gentler, more efficient alternative by selectively breaking down the sericin without affecting the silk fibers themselves. Enzymatic degumming results in smoother, softer, and more lustrous silk fabric, improving its quality and appeal.

2. Wool Processing

Raw wool contains natural impurities such as lanolin, fatty acids, and dirt, which must be removed before dyeing and finishing. Protease enzymes are commonly used in the scouring process to remove these impurities while preserving the integrity of the wool fibers. Enzymatic scouring improves wool's softness, dyeability, and hydrophilicity, making it more suitable for textile applications. This process also minimizes the environmental impact of wool processing by reducing the need for harsh chemicals and water consumption.

3. Synthetic Fibers Processing

Synthetic fibers such as polyester and nylon are hydrophobic, meaning they do not absorb water well and are difficult to dye, print, or finish. To make synthetic fibers more hydrophilic and easier to process, they are often treated with alkalis, which can be harsh and harmful to the environment. Enzymes like Lipases and Esterases can be used to modify the surface of synthetic fibers, making them more receptive to dyeing and finishing treatments. These enzymatic modifications provide a more eco-friendly and effective alternative to traditional chemical treatments.

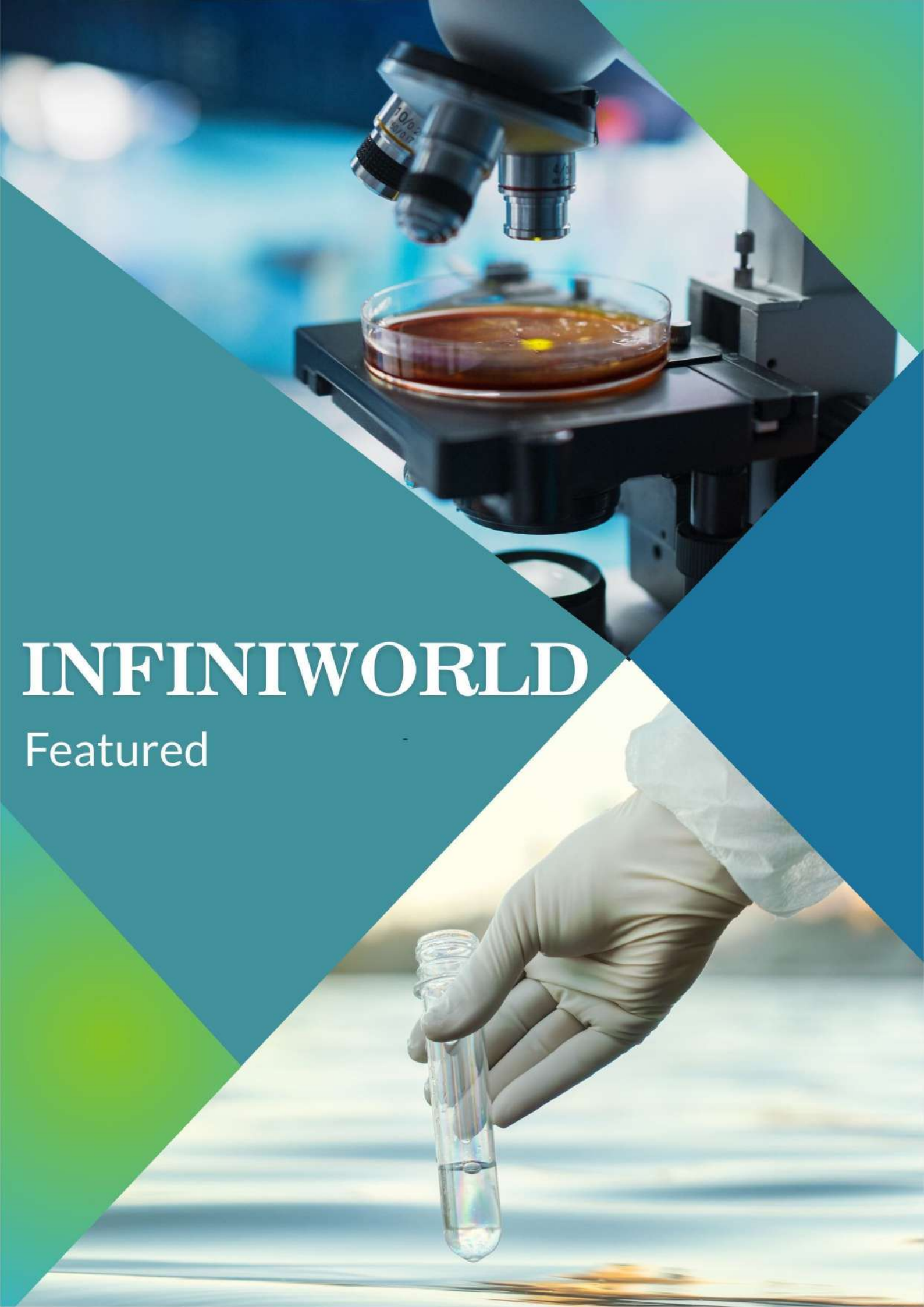
4. Extraction of Natural Fibers

Bast fibers, such as flax, hemp, jute, and bamboo, are traditionally extracted through a process called retting, which involves degrading the gums that bind the fiber to the plant stem. This process can be labor-intensive and time-consuming. Enzymes like Hemi-cellulase and Pectinase can be used to accelerate retting, breaking down the gums efficiently without damaging the fibers. This enzymatic approach is faster, more eco-friendly, and more cost-effective compared to traditional retting methods.

Conclusion

The use of enzymes in the textile industry offers a pathway toward a more sustainable, energy-efficient, and environmentally friendly future. Enzymatic treatments are revolutionizing textile processing by providing cleaner, safer, and more cost-effective alternatives to harmful chemicals. With their ability to accelerate reactions, operate under milder conditions, improve fabric quality, and reduce environmental pollution, enzymes are playing a pivotal role in reshaping the textile industry. Whether in cotton desizing, bio-scouring, or synthetic fiber processing, enzymes provide targeted solutions across multiple stages of production.

As the demand for sustainable textiles continues to grow, enzymes will become an increasingly critical tool for the textile industry, paving the way for a greener, cleaner, and more efficient manufacturing process. Through continued research and innovation, enzymes are poised to be a key player in the evolution of textile production, fostering a more sustainable and eco-conscious approach to garment and fabric manufacturing.



INFINIWORLD

Featured



18th FGI AWARDS FOR EXCELLENCE 2024, VADODARA



11th ANNUAL AFRICA SUGAR AND ETHANOL CONFERENCE 2024, KENYA



DETEX 2024, JORDAN



BEVITEC 2024, RUSSIA

CHEMICOS 2024, RUSSIA



CHCI 2024, AHMEDABAD



FEBRATEX EXHIBITION 2024, BRAZIL



HPCI INDIA 2024, MUMBAI



23rd INTERNATIONAL CONFECTIONARY FAIR 2024, IRAN



SEPAWA CONGRESS 2024, GERMANY



7th INTERNATIONAL OIL SPILL INDIA
CONFERENCE AND EXHIBITION 2024, NEW DELHI

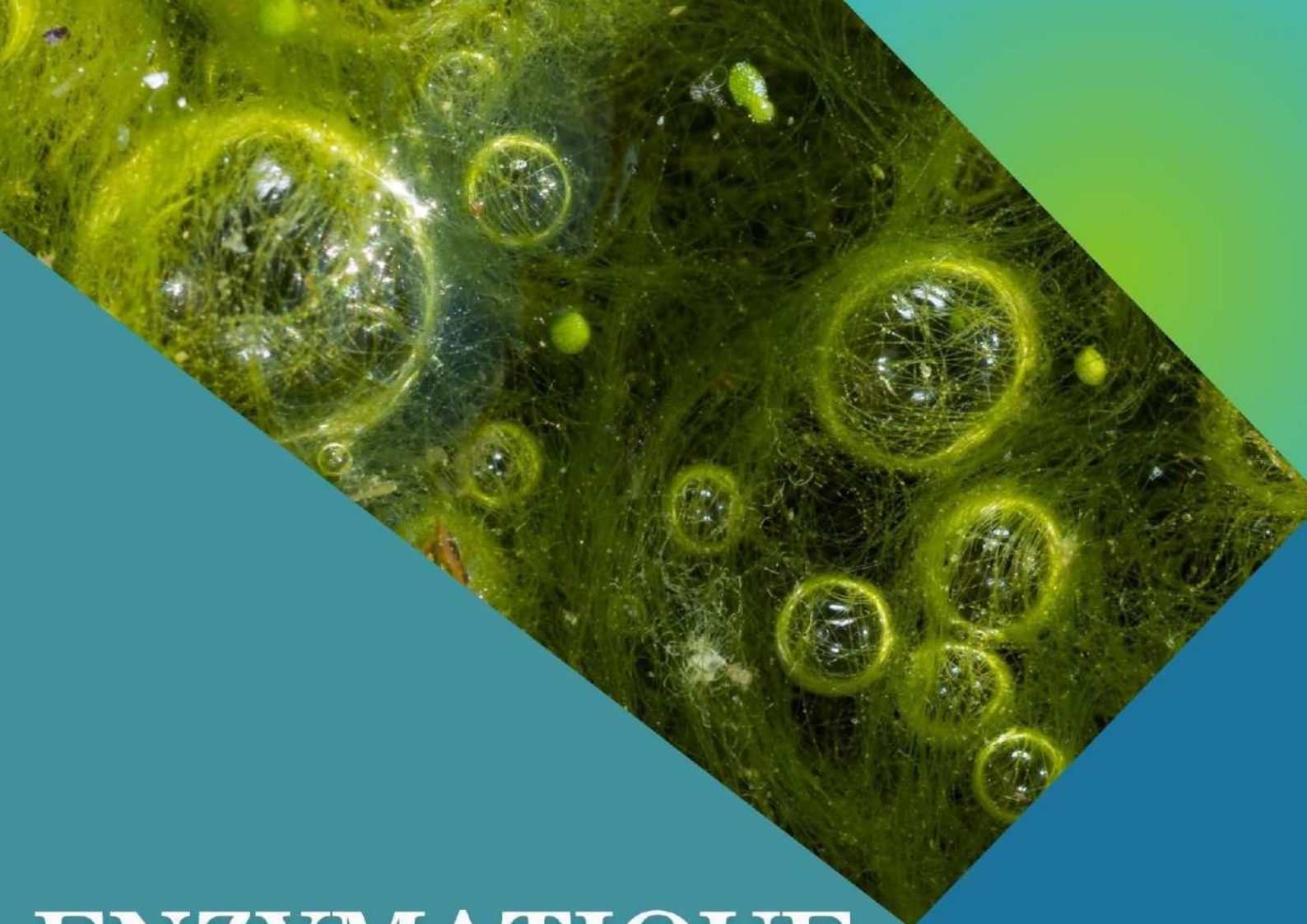
Certifications and Accreditations



ECO
PASSPORT

Media Coverage





ENZYMATIQUE

Industry Focus



The Role of Enzymes in Sugar Processing



Sugar processing is a complex, energy-intensive process that transforms raw materials like sugar cane or sugar beet into the sugar products we use daily. This process involves multiple stages, from extracting juice to refining it into pure sugar crystals. Over the years, enzymes have become powerful tools for improving these processes. Enzymes enhance sugar production efficiency, reduce costs, and lessen the environmental impact. This article explores how enzymes are used at various stages of sugar processing and the benefits they offer.

What Are Enzymes?

Enzymes are natural proteins that act as catalysts, meaning they speed up chemical reactions without being consumed or permanently altered. In sugar production, enzymes are used to break down complex substances, making it easier to extract sugar, clarify juice, and refine the final product.

Key Enzymes Used in Sugar Processing

Several enzymes are commonly used in sugar processing, including:

- Amylase: Breaks down starches into simpler sugars.
- Dextranase: Breaks down dextran, a substance that can cause issues in sugar refining.

- **Invertase:** Converts sucrose (table sugar) into glucose and fructose, used to make various sweeteners.
- **Glucose Isomerase:** Converts glucose into fructose, commonly used in the production of high-fructose corn syrup.

Each enzyme plays a specific role in the sugar processing stages, enhancing efficiency and effectiveness.

Applications of Enzymes in Sugar Processing

- 1. Enzyme-Assisted Juice Extraction** The first step in sugar production is extracting juice from sugar cane or beet. Traditionally, this is done by pressing or diffusion, which can be inefficient as some sugar remains in the plant material, wasting resources. Enzymes improve this process by breaking down the plant's cell walls and softening fibres, allowing more juice to be extracted and increasing the overall sugar yield.
- 2. Clarification of Juice** After juice extraction, it must be clarified to remove impurities like dirt and solids, making it clear and suitable for crystallisation. Traditionally, this requires chemicals like lime and sulphur dioxide. However, enzyme based clarification is becoming more popular as a sustainable and eco-

friendly alternative. Enzymes break down impurities, reducing the need for chemical treatments and mechanical filtration, which lowers costs and results in better-quality juice, higher-quality sugar, and less waste.

- 3. Inversion of Sucrose** In some cases, sucrose (table sugar) is broken down into glucose and fructose through a process called inversion, achieved with the enzyme invertase. This breakdown is useful for making products like high-fructose corn syrup (HFCS) or other liquid sweeteners used as alternatives to refined sugar in food and beverages.
- 4. Crystallisation and Sugar Purification** Crystallisation and Sugar Purification Crystallisation is the step where sugar is separated from molasses (leftover syrup) and is one of the most crucial stages in sugar refining. The crystallisation process is influenced by sugar concentration, temperature, and impurities. Enzymes facilitate this process by breaking down non-sugar components and aiding in sugar crystallisation. Amylases reduce liquid thickness by breaking down starches, making it easier to crystallise sugar, while dextranases breakdown dextran, which can otherwise hinder crystallisation.



Benefits of Using Enzymes in Sugar Processing

- 1. Increased Efficiency** Enzymes boost sugar processing efficiency by enhancing juice extraction, clarification, and crystallisation. These improvements lead to better sugar yields, allowing more sugar to be produced from the same amount of raw material, reducing waste, and conserving resources like water and energy.
- 2. Cost Savings** Enzyme use in sugar processing cuts costs in various ways. Enzymes increase the sugar yield from raw materials, reducing losses. By decreasing the need for chemicals and energy-intensive methods, enzymes lower operational expenses. They also extend equipment lifespan by functioning at lower temperatures and pressures, reducing wear and tear.
- 3. Environmental Sustainability** Enzymes make sugar processing more eco-friendly by reducing the need for harsh chemicals, lowering chemical waste and minimising methods also conserve energy and water, contributing to a smaller environmental footprint. This is increasingly important as the sugar industry faces growing pressure to adopt sustainable practices.

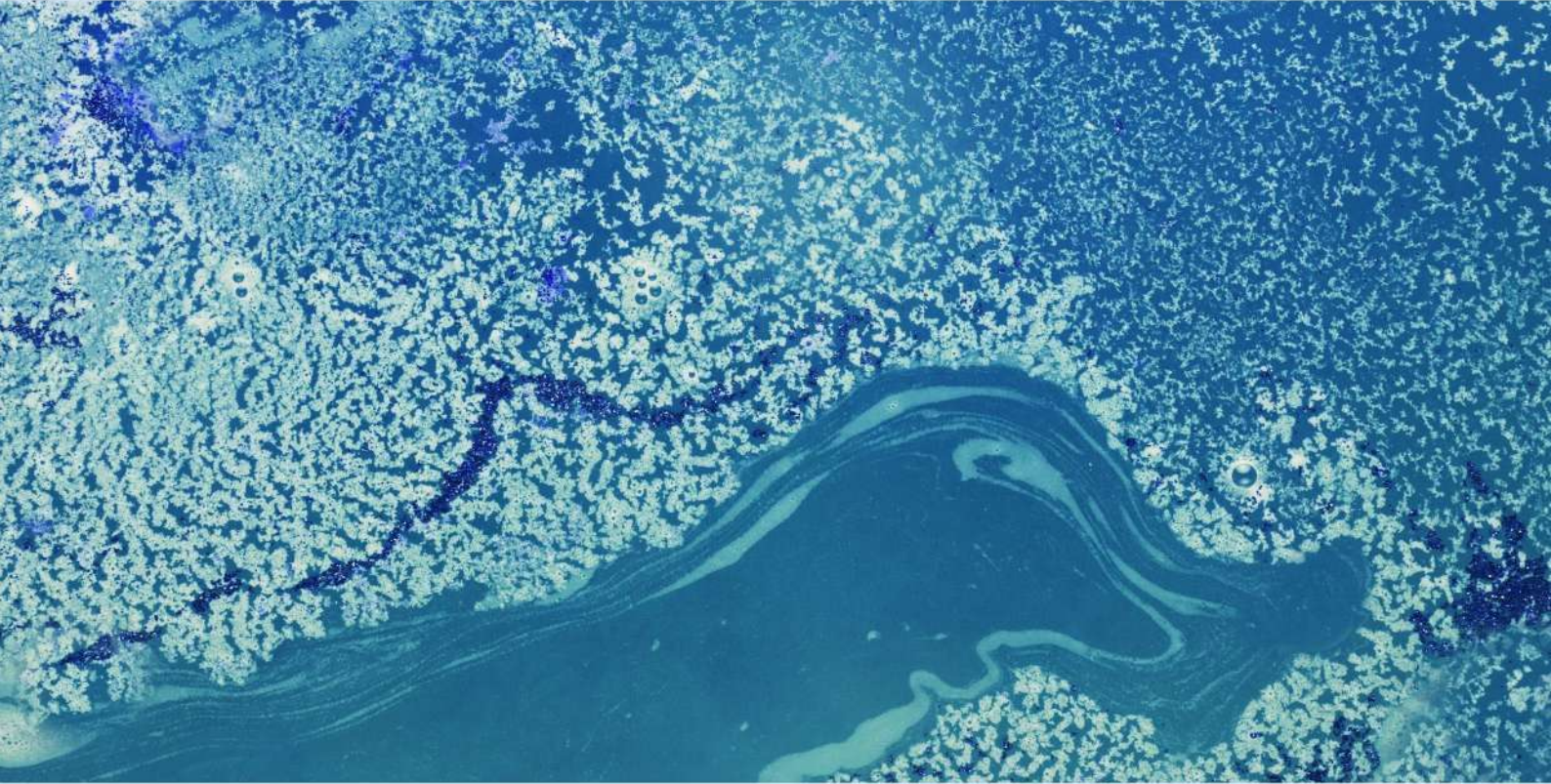
- 4. Higher-Quality Products** Enzymes improve the final sugar product quality. By breaking down impurities and enhancing crystallisation, enzymes yield purer, higher-quality sugar. This consistent quality makes the sugar suitable for various applications, from food production to sweeteners.

Conclusion

Enzymes have become essential in the sugar processing industry. They make processes more efficient, cut costs, and improve sugar quality. From enhancing juice extraction to improving clarification and aiding crystallisation, enzymes offer significant advantages over traditional methods. By reducing chemical use, conserving energy, and optimising raw material use, enzymes are helping to make sugar production more sustainable and cost-effective. As enzyme technology advances, enzymes will likely play an even greater role in shaping the future of the sugar industry, driving innovation and sustainability.



The Role of Enzymes in Seawater Remediation



The health of the world's oceans is critical for maintaining the planet's balance. Pollution in the oceans, including oil spills, plastics, and chemicals, has become an increasingly severe problem. Effective and sustainable methods are urgently needed to tackle this issue. Recent scientific advancements have highlighted the potential of enzymes-natural substances that facilitate chemical reactions in nature-as a safer and more efficient alternative to chemical-based cleanup methods.

Understanding Enzymes in Seawater Remediation

Enzymes are natural proteins that speed up chemical reactions. In ocean cleanup efforts, enzymes break down pollutants such as oil and harmful chemicals into safer substances. By targeting specific components of pollutants, enzymes make the cleaning process faster and more effective compared to conventional approaches.

Using enzymes in environmental cleanup, including seawater remediation, is part of a broader process called bioremediation, which involves employing living organisms or their derivatives to reduce or remove pollution. Enzymes are particularly appealing due to their non-toxic nature, environmental compatibility, and ability to function under diverse conditions.

Infinita's Key Enzymes in Seawater Remediation

Infinita Biotech offers advanced enzymatic solutions to address a variety of environmental challenges:

- 1. ECOENZYME - CRUDE SPILL:** A specialised enzyme and microbial blend designed to effectively eliminate hydrocarbons, especially crude oil, through hydrolysis. This formulation is highly effective across a wide range of pH and temperature conditions.
- 2. ECOENZYME - SNOT:** Tailored to combat marine mucilage, or "sea snot," this enzyme blend hydrolyzes mucilage and controls microbial growth, addressing a significant threat to marine ecosystems and water quality.
- 3. ECOENZYME - ALGAE:** Developed to target and remove algae, this enzyme blend provides an effective solution for algae-related water quality challenges.



Benefits of Enzyme-Based Seawater Cleaning

- 1. Eco-Friendly and Sustainable :** Enzyme-based cleaning is far gentler on the environment than traditional chemical methods, which often generate harmful by-products and consume significant energy. Enzymes are natural, biodegradable, and non-toxic, making them ideal for preserving fragile marine ecosystems.
- 2. Targeted and Specific :** Enzymes precisely target specific pollutants without harming the surrounding environment. This focused action ensures minimal ecological disruption and maximises cleanup efficiency.
- 3. Cost-Effective :** Although enzyme production can be expensive, their use in remediation saves costs over time. They reduce reliance on harmful chemicals, energy-intensive methods, and expensive waste disposal processes, while providing faster, more efficient pollutant breakdown.

- 4. Boosts Natural Cleanup:** Enzymes accelerate the natural breakdown of pollutants in seawater and promote the growth of beneficial microorganisms that support marine ecosystem health.

Ongoing research aims to enhance enzyme efficiency and reduce production costs, paving the way for broader adoption of enzyme-based seawater remediation technologies.

Conclusion

Enzymes represent a promising and sustainable solution for cleaning seawater polluted by contaminants such as oil, heavy metals, plastics, and nitrogen compounds. Their ability to catalyze natural breakdown processes, target specific pollutants, and function under environmentally safe conditions makes them invaluable in the fight against marine pollution. As enzyme technology continues to evolve, it is poised to play a pivotal role in protecting and restoring the health of the world's oceans.

References

Google Scholar • ResearchGate • ScienceDirect

The Role of **Enzymes** in the **Paper and Pulp Industry**



The paper and pulp industry is one of the most vital sectors in the global economy, with applications ranging from newspapers and books to packaging materials and tissue products. Improving sustainability, reducing environmental effects, and improving operational efficiency are the major challenges faced in this industry. To overcome these challenges, the use of enzymes has been proven to be extremely beneficial in various stages of paper production.

Understanding Enzymes in the Paper and Pulp Industry

Enzymes are biological catalysts that accelerate chemical reactions. In the context of the paper and pulp industry, enzymes are utilised to facilitate processes such as manufacturing coated papers, de-inking, fibre modification, and drainage improvement. These enzymes are typically derived from microorganisms. The most commonly used enzymes in the paper and pulp industry are Cellulases, Xylanases, Amylases, and Lipases. Each enzyme targets specific components of wood, fibres, or chemical compounds in the pulp, helping to optimise various stages of production.

Applications of Enzymes in Paper and Pulp Production

Pulping Process

Pulping is the first step in making paper, where wood is broken down into small fibres. Traditionally, this is done using machines or harsh chemicals, which use a lot of energy and can harm the environment. Enzymes, such as xylanase, are a better option. Xylanase breaks down parts of the wood that hold the fibres together, making it easier to separate them. This reduces the energy needed and improves the amount of usable pulp. Using enzymes also means less need for harsh chemicals, which makes the process more environmentally friendly and can even improve the quality of the pulp.

Bleaching and Lignin Removal

Bleaching is the process of removing the brownish colour from the pulp. Traditional bleaching uses strong chemicals that can be harmful to the environment. Enzymes are a safer, more eco-friendly alternative for removing lignin, the substance that causes the brown colour. Enzymes like cellulases can also help remove unwanted bits of cellulose, making the bleaching process more efficient. This reduces the need for chemicals and helps improve the final appearance of the paper.

Fibre Modification

Enzymes are also used to improve the properties of paper fibres, especially when making high-quality paper. Cellulases help strengthen the fibres, making the paper stronger, smoother, and more durable.

Wastewater Treatment and Environmental Benefits

A big environmental challenge in paper production is dealing with wastewater, which contains chemicals and organic materials. Enzymes are used to break down these substances more efficiently, making it easier to clean the water before it's released back into the environment. Using enzymes in wastewater treatment can reduce the need for harsh chemicals, cut costs, and help paper mills meet environmental regulations.

Benefits of Using Enzymes in the Paper and Pulp Industry

Environmental Sustainability

Enzymes help make paper production more environmentally friendly. By replacing or reducing the use of harsh chemicals, enzymes help cut down on harmful by-products, lower energy use, and reduce greenhouse gas emissions. They also make it easier to recycle paper, which helps reduce the environmental impact of the industry.

References

Google Scholar • ResearchGate • ScienceDirect

Cost Reduction

Using enzymes in paper production can save money. Enzymes improve pulp quality and reduce the need for chemicals and energy, which lowers production costs. Enzyme treatments also help extend the life of machinery, cutting down on repair and maintenance costs since enzymes work at lower temperatures and pressures than traditional methods.

Improved Paper Quality

Enzymes can improve the strength, smoothness, and print quality of paper, leading to better products. They also allow manufacturers to make paper with special features, meeting the demand for high-quality and specialty papers.

Compliance with Regulations

As regulations on environmental impact become stricter, the paper industry is under pressure to adopt cleaner practices. Enzymes help paper manufacturers meet environmental rules about water pollution, air emissions, and chemical use.

Conclusion

Enzymes are becoming essential in the paper and pulp industry. They help make production more sustainable, lower costs, and improve the quality of paper. By replacing harmful chemicals, making processes more efficient, and saving energy, enzymes help make the industry both eco-friendly and cost-effective. As enzyme technology continues to improve, it will play an even bigger role in shaping the future of the paper industry, driving both innovation and sustainability.





AD

INFINITUM

Unique Enzymatic Solutions
for a better tomorrow

ECOENZYME - AGRI C



Agricultural residues, such as straw, leaves, and other plant-based materials, often contain a high amount of cellulose and hemicellulose, which are difficult for microorganisms to degrade on their own and take a longer duration to decompose. This waste also includes lignocellulosic materials—composed of cellulose, hemicellulose, and lignin—which are typically slow to break down. These challenges hinder the efficient recycling of agricultural waste into nutrient-rich compost, delaying soil enrichment and sustainable farming practices.

ECOENZYME - AGRI C is a highly effective blend of specially selected enzymes and non-pathogenic bacterial and fungal microbes, designed to accelerate the composting process of agricultural waste. This innovative product promotes the breakdown of organic materials in agricultural waste, transforming them into valuable compost that enriches the soil.

By introducing ECOENZYME - AGRI C, enzymes directly break down cellulose and hemicellulose into simpler sugars, which are more easily consumed by other microbes involved in the composting process. This speeds up the entire composting process, reducing the time needed to convert agricultural waste into nutrient-rich compost.

Additionally, ECOENZYME - AGRI C effectively decomposes lignocellulose-based agricultural waste in the soil, breaking down all cellulose components and facilitating the recycling of essential nutrients like nitrogen, phosphorus, and potassium back into the soil. This enhances the natural microbial environment in the soil and improves soil structure, ensuring better moisture retention, air permeability, and vitality. The product's unique composition supports the decomposition of even the most resistant plant materials, enabling faster recycling of organic matter into humus.

ECOENZYME - AGRI C is specifically designed to support soil ecology, enhancing the natural microbial environment in the soil and improving soil structure. By minimizing stress related to variable environmental conditions, ECOENZYME - AGRI C ensures that the agricultural ecosystem remains healthy and productive, even in the face of challenging weather patterns or soil degradation. Its consistent use leads to long-term improvements in soil vitality and fertility.

Advantage to using ECOENZYME - AGRI C

- Faster Composting Process
- Eco-friendly and Non-pathogenic
- Promotes Soil Health
- Enhance Nutrient Recycling
- Cost-Effective

Composting procedure using ECOENZYME - AGRI C

- Mix 1–2 kg of ECOENZYME - AGRI C Powder with an adequate amount of water and apply it to 1 ton of organic waste (shredded into small pieces) on a dry basis, kept in an open field.
- Overturn the waste thoroughly to ensure the enzyme-water solution reaches all the material.
- Maintain moisture by watering just enough to retain it and overturn the waste periodically.
- Check the composting results every 15 days after application.



ECOENZYME - PAP



ECOENZYME - PAP is a proteolytic enzyme derived from the latex of the *Carica papaya* (papaya) plant. As a member of the cysteine protease family, it exhibits exceptional protein-breaking capabilities, hydrolyzing peptide bonds to release smaller peptides and amino acids. This enzymatic activity makes ECOENZYME - PAP highly versatile and suitable for diverse applications across food processing, medicine, and cosmetics.

In **cosmetics**, ECOENZYME - PAP is prized for its exfoliating properties. By breaking down protein bonds in the epidermis, it facilitates the removal of dead skin cells, promoting smoother, rejuvenated skin. Its effectiveness in softening and reducing hypertrophic scars also makes it a valuable component in skin care products aimed at scar management and skin texture improvement. Papain's non-toxic nature ensures safe usage, enhancing its appeal for topical applications.

In the **food industry**, the enzyme's proteolytic action is utilized for meat tenderization. By breaking down the tough connective tissues in meat, it enhances texture and palatability. Additionally, its ability to hydrolyze proteins into amino acids and smaller peptides plays a significant role in protein hydrolysis processes, contributing to the production of functional food ingredients and supplements.

In the **nutraceutical sector**, ECOENZYME - PAP plays a crucial role in enhancing the nutritional value of supplements and functional foods. Its ability to hydrolyze proteins into bioavailable peptides and amino acids supports better absorption and utilization of nutrients. This makes it an integral ingredient in dietary supplements aimed at improving digestion, boosting immunity, and promoting overall well-being. Its natural origin and non-toxic properties align well with the growing demand for clean-label nutraceutical products.



ECOENZYME - PAP's applications extend into the medical field, where its proteolytic properties aid in wound and tissue healing. By digesting necrotic tissues and removing dead cells, it accelerates recovery and promotes healthy tissue regeneration. It is also used to manage digestive issues such as dyspepsia and other gastrointestinal ailments. Its anti-inflammatory properties benefit various skin conditions, including ulcers, eczema, and lesions. Furthermore, ongoing studies explore its potential use in diagnosing and treating stomach and intestinal cancers, underscoring its therapeutic versatility.

Papain's broad substrate specificity allows it to cleave peptide bonds involving basic amino acids like leucine and glycine. In addition to protein hydrolysis, it can also hydrolyze esters and amides, demonstrating remarkable versatility in industrial applications. This multifunctionality ensures its effectiveness in processes such as antifungal and antibacterial treatments, contributing to cleaner and safer processing environments.

Advantage of Using ECOENZYME - PAP:

- Meat Tenderization
- Exfoliation and Skin Care
- Wound and Tissue Healing
- Digestive Aid
- Eco-friendly Processing
- Versatility

ECOENZYME - BROM



ECOENZYME - BROM is a proteolytic enzyme derived from the stem of the pineapple plant (*Ananas comosus*). Known for its ability to break down protein molecules into smaller peptides and amino acids, it finds applications across multiple industries, including nutraceuticals, dietary supplements, food processing, cosmetics, and pharmaceuticals. Its natural origin and powerful protease activity make it a sought-after ingredient in diverse formulations.

In **Nutraceuticals**, ECOENZYME - BROM is particularly valued for its ability to support digestive health by enhancing the breakdown of proteins, improving nutrient absorption, and aiding overall gut function. It is often included in **dietary supplements** designed to promote digestive health, alleviate gastrointestinal discomfort, and support recovery from injuries or surgeries. The enzyme's **anti-inflammatory** properties also make it beneficial for **joint and muscle health**, reducing inflammation and supporting recovery. Additionally, its antioxidant properties are utilized in supplements aimed at supporting **immune health** and protecting the body from oxidative stress.



In the **food industry**, ECOENZYME - BROM serves as a natural meat tenderizer, breaking down tough proteins to improve texture and flavor. It also facilitates efficient protein hydrolysis in food processing and contributes to improved clarity and stability in beverages like beer and juice. These attributes make it a versatile tool for enhancing food quality and processing efficiency.

In cosmetics, the enzyme is celebrated for its gentle exfoliating properties, which help remove dead skin cells and promote a smoother, rejuvenated complexion. Its anti-inflammatory effects make it suitable for reducing redness and soothing irritation in skincare formulations. Furthermore, bromelain is often included in anti-aging products for its ability to boost cell turnover and enhance skin texture.

In the pharmaceutical industry, ECOENZYME - BROM plays a critical role as an anti-inflammatory and antiedematous agent, reducing swelling and supporting post-surgical recovery. Its fibrinolytic and antithrombotic properties help prevent blood clots, contributing to cardiovascular health. It is also valued for its analgesic properties, providing pain relief and supporting wound healing.

Advantages of Using ECOENZYME - BROM

ECOENZYME - BROM is a natural, plant-based enzyme that offers an eco-friendly and sustainable alternative to synthetic chemicals. Its plant origin ensures that it is gentle on the body, biodegradable, and free from harmful residues, making it ideal for various applications. It is highly effective in reducing inflammation, improving digestion, supporting cardiovascular health, promoting radiant skin, and enhancing food quality. Its versatility, combined with its safe, non-toxic profile, makes it a preferred choice across industries.



ECOENZYME - TERRAIN



Soil stabilization is a widely recognized process in road construction, aimed at improving the structural properties of soil to enhance its strength and durability. Traditionally achieved through chemical or mechanical methods, these conventional approaches often pose ecological challenges and incur high costs. To address these limitations, Infinita Biotech has developed ECOENZYME - TERRAIN, an eco-friendly and biodegradable multi-enzyme product that offers a sustainable and effective solution for soil stabilization.

How ECOENZYME - TERRAIN Works?

ECOENZYME - TERRAIN is designed to enhance the physical and chemical properties of soil, significantly improving its workability, mix-ability, binding, and compaction. When added to soil, the enzymes increase its wetting and bonding capacity, allowing soil particles to absorb water more efficiently and compact more densely. This enzymatic action strengthens the chemical bonding between particles, creating a permanent structure that resists water penetration and weathering. By improving soil stability, ECOENZYME - TERRAIN ensures a robust and durable foundation for road construction and related projects.

Key Benefits

- **Reduced Construction Costs:** Lower costs due to improved soil properties and reduced need for mechanical compaction.
- **Minimal Road Maintenance Costs:** Enhanced soil stability results in longer-lasting roads with reduced maintenance needs.
- **Excellent Environmental Safety:** Particularly beneficial for areas such as the Forest Reserve Area, ensuring minimal environmental impact.
- **Strengthened Base Layers:** Ideal for the construction or restoration of rural or forest highways, providing a stable foundation.



INFINITEAM

Employee Corner



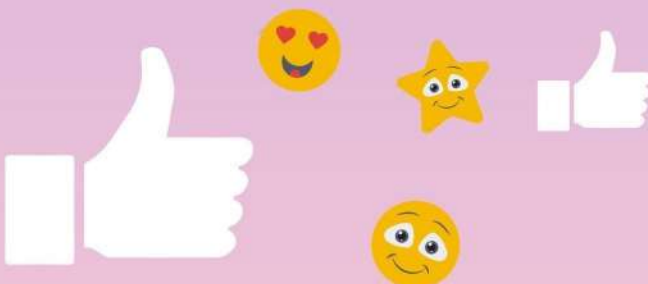
R&D Department : At IBPL/RDPP, we are encouraged to develop curiosity and adopt a diverse approach with our experiments and trials. Besides our individually entrusted responsibilities, we are also grouped into teams for certain activities. Training opportunities (external or in-house) help us stay aware and updated regarding the latest developments in our field. We get an opportunity to work on enzymes that are likely to have a crucial impact on the environment. Formulations for soil stabilization help us appreciate the outcome of the enzyme treatment in terms of soil binding. Various analytical instruments improve our understanding of the enzymes and enzyme-substrate interactions.

Logistics Department : It's inspiring to see the management continuously strive to find new ways to improve and help us all grow-personally and professionally. The company genuinely cares about our development. Everyone's concerns are heard. The company fosters a dynamic atmosphere where efficiency and precision are top priorities. As a logistician, we can't wait to see the addition of a shining star to the export house.

Quality Assurance Department : Infinita Biotech fosters a favorable and cooperative work culture that drives innovation and learning. The group is diverse in representation yet united by a shared passion for biotechnology, particularly enzyme production. It is truly a company that values its products as much as its people. With a supportive work environment, ample opportunities for professional growth, and a strong team spirit, Infinita Biotech stands out as an ideal choice for anyone seeking a long and fulfilling career in the biotech industry.

Production Department: At Infinita Biotech, the work culture is both rewarding and engaging. With a strong focus on quality and continuous development, we are always learning and evolving. The support from colleagues and management makes every day an opportunity to excel and contribute to something meaningful.

Purchase Department: The atmosphere here is incredibly friendly, and the employees are always supportive. It's a pleasure to work in an environment where you not only grow professionally but also get guidance that helps in building your character. The team's encouragement and willingness to share knowledge create a space for continuous learning and personal development. It's truly a place that fosters development in every aspect.



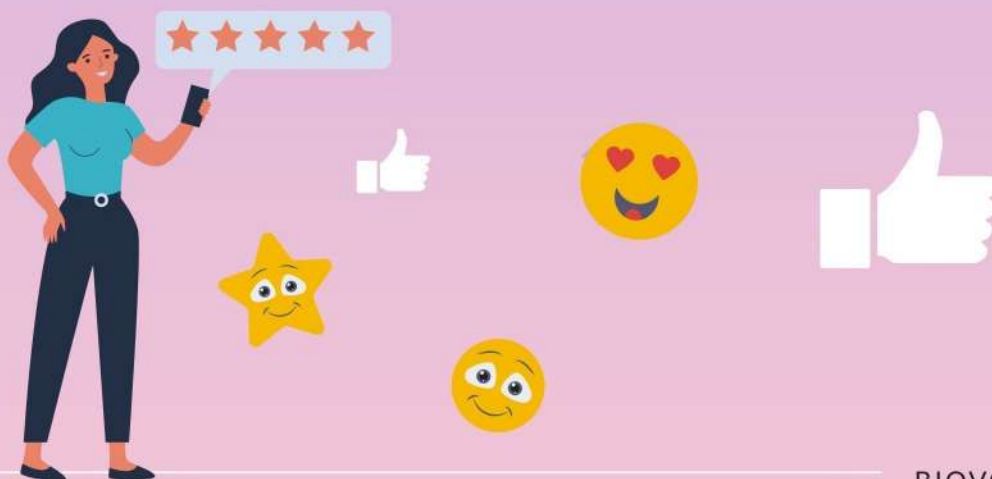
Marketing Department: Collaborating with Infinita Biotech's marketing department has been an incredibly rewarding experience. The company's vision is centered around continuous growth, where our ideas are valued and nurtured. Infinita's culture fosters a sense of freedom, allowing us to stay focused on achieving our goals. We are grateful to Mr. Adarsh Desai for providing us with the opportunity to be a part of this journey and grow. Additionally, we appreciate Mr. Milind Kulkarni for his constant motivation and support, which enables us to learn and improve every day.

HR Department: The company is deeply committed to fostering a positive and supportive learning environment. It provides employees with valuable opportunities to enhance their skills through well-structured training programs, cross-functional projects, and engaging assignments. These initiatives support both professional and personal growth, making the company a truly fantastic place to work. Special thanks to our Managing Director, Mr. Adarsh Desai, for consistently offering challenging tasks that significantly contribute to our development and success.

Accounts Department: Working at Infinita Biotech has been an immensely fulfilling experience. We work with a vision to drive excellence in financial practices. To summarize, working with Infinita Biotech has provided a fantastic platform for our overall growth and also has helped us to develop our skills which consequently proves beneficial for the success of the organization.

Admin Department: As members of the administrative team at Infinita Biotech, we take immense pride in contributing to a company that values innovation, quality, and growth. The inclusive environment and access to cutting-edge tools empower us to ensure seamless operations and drive success. Our dynamic roles, coupled with the trust placed in us by the organization, foster adaptability and professional development. This enables us to grow alongside the company while learning from industry leaders.

Quality Control Department: As employees of INFINITA BIOTECH PRIVATE LIMITED, we've had the privilege of working in an environment that not only prioritizes innovation but also fosters a culture of teamwork and sustainability. The company's commitment to producing high-quality enzymes, which play a vital role in industries like agriculture, food, detergent, distillery, textile, and biotechnology, is truly inspiring.





INFINITALK

Events and Celebrations









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