CURRENT AFFAIRS NOTES 09-01-2024

Camptothecin

Researchers at the Indian Institute of Technology Madras and Mandi have metabolically engineered Nothapodytes nimmoniana plant cells to increase production of anti-cancer drug camptothecin (CPT).

About Camptothecin

- Camptothecin (CPT) is an important anti-cancer drug lead molecule for high-value drugs like Topotecan and Irinotecan.
- It is a potent topoisomerase I inhibitor extracted mainly from - Camptotheca acuminata (native to Eastern Asia) and Nothapodytes nimmoniana (native to India).
- It is majorly produced in the Southeast Asian region, with the plant being largely found only in China and India.
- However, the conjunction of climate change and extensive deforestation undertaken for CPT extraction has pushed these plants into the endangered species category.

Key facts about Nothapodytes nimmoniana

- It is an endangered forest plant and disseminated in Sri Lanka, China, South East Asia, Taiwan, North Sumatra, Luzon Philippines and India.
- In India, this plant is prevalent to Western Ghats of Maharashtra, Goa, Tamil Nadu, and Kerala and also found in Assam and Jammu and Kashmir.
- It is native to India and especially found in the Western Ghats region.

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- The allopathic medicine is produced using Nathapodytes nimmoniana.
- The plant contains camptothecin (CPT) which is a renowned anticancer drug.
- The CPT is found in many plant species but maximum amount of CPT has been reported from N. nimmoniana.
- It requires nearly 1,000 tonnes of plant material to extract 1 tonne of CPT.
- The International Union for Conservation of Nature has red-listed the plant as in the past decade alone there has been a 20% decline in the plant's population.
- Due to the very good source of CPT, this plant has been explored for its Phytochemical, Biotechnological and Pharmacological aspects.

National Housing Bank (NHB)

In a regulatory filing, LIC recently said the board has cleared the proposal to invest in a new company, promoted by the NHB, for residential mortgage-backed securities.

About National Housing Bank (NHB)

NHB is an All-India Financial Institution (AIFI) established under the National Housing Bank Act, 1987.

It is wholly owned by the Government of India.

Objective: To operate as a principal agency to promote housing finance institutions both at local and regional levels and to provide financial and other support to such institutions.

The main functions of NHB include:

Supervision and grievance redressal regarding Housing Finance Companies (HFCs). Ensures that HFCs meet regulatory capital requirements as required by BASEL norms, have a proper risk management framework in place, have good governance practices, etc.

Financing in the form of extending refinancing options to primary lenders and lending directly with respect to projects undertaken by public housing agencies.

Promotion and Development.

NHB supervises HFCs, while regulation of HFCs is with the RBI.

Head Office: New Delhi

The general superintendence, direction, and management of the affairs and business of NHB vest in its Board of Directors.

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NHB RESIDEX: It is the country's first official housing price index (HPI). It captures movements in the prices of residential real estate prices.

Chandubi Festival

Recently, the Chandubi Festival was celebrated along the Chandubi Lake in the state of Assam.

It is organised every year for five days starting from the first day of the New Year along the Chandubi lake, which is situated in the state of Assam.

The main attractions of the Chandubi festival are the local folk culture, ethnic cuisine, local handloom and dresses, boating, etc.

The major aim of the Chandubi Festival is to promote eco-tourism in this biodiversity hotspot of Assam.

Preserving the waterbody, the water level of which has rapidly been lowering over the years, has been the motive for organising the festival every year.

The festival has been providing an opportunity to generate livelihood to different tribes – Rabhas, Garos, Gorkhas and tea tribes – living in the area by selling different food items and homemade beverages, and traditionally woven attire.

Key points about Chandubi lake

It was created during a massive earthquake in the year 1897.

The name Chandubi is derived from two words where Chand means five and Dubi means sinking in Khasi language.

This freshwater lake was turned to an economically viable water body that would sustain different communities living around the lake.

It is a very prosperous wetland of the state that houses numerous species of aquatic flora and fauna.

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World Heritage Committee

In a historic milestone, India is set to take the reins as the chair of UNESCO's World Heritage Committee for the very first time.

About World Heritage Committee

It is a committee of the United Nations Educational, Scientific, and Cultural Organization.

The Committee is responsible for the implementation of the World Heritage Convention, defines the use of the World Heritage Fund, and allocates financial assistance upon requests from States Parties.

It has the final say on whether a property is inscribed on the World Heritage List.

It examines reports on the state of conservation of inscribed properties and asks States Parties to take action when properties are not being properly managed.

It also decides on the inscription or deletion of properties on the List of World Heritage in Danger.

Structure:

It consists of representatives from 21 of the States Parties to the Convention elected by their General Assembly.

A Committee member's term of office is six years, but most state parties choose voluntarily to be members of the committee for only four years in order to give other states parties an opportunity to be on the committee.

Bureau of the World Heritage Committee:

The Bureau consists of seven states parties elected annually by the Committee: a Chairperson, five Vice-Chairpersons, and a Rapporteur.

The Bureau of the Committee coordinates the work of the Committee and fixes the dates, hours, and order of business of meetings.

SPONGE FARMING

As oceans warm up, women in Zanzibar switch from seaweed to climate-resilient sponge farming to stay afloat.

Sponge farming, or sponge mariculture, is an innovative practice involving the cultivation of marine sponges for commercial purposes. This sustainable approach addresses the demand for natural sponges while minimizing the environmental impact associated with traditional harvesting methods. The cultivation of sponges contributes to economic development, biodiversity conservation, and the sustainable use of marine resources.

Various sponge species are cultivated in sponge farming practices, including commercially valuable varieties like the Mediterranean bath sponge (Spongia

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officinalis) and the Caribbean reef sponge (Euplectella aspergillum). Understanding the biology and ecology of these species is crucial for successful cultivation.

Cultivation Methods:

Sponge farming employs different cultivation methods, ranging from attaching sponge fragments to artificial substrates to using natural sea-bottom substrates. The substrates are often suspended above the sea floor to avoid sedimentation issues. The process may involve collecting sponge fragments or larvae and facilitating their growth under controlled conditions.

Environmental Conditions:

Success in sponge farming depends on maintaining specific environmental conditions. Factors such as water temperature, salinity, nutrient levels, light availability, and water quality play pivotal roles in sponge growth. The cultivation sites are carefully chosen to ensure optimal conditions.

Harvesting and Pruning:

Harvesting involves carefully cutting mature sponges from the substrate, leaving the base intact for regrowth. Pruning or cutting back the sponges is a common practice to stimulate branching and enhance the production of high-quality, marketable sponges. Sustainable harvesting practices are emphasized to avoid depletion of sponge populations.

Applications of Cultivated Sponges:

Cultivated sponges find applications in various industries. They are valued for their natural absorbency, exfoliating properties, and use in cosmetics, pharmaceuticals, and personal care products. Understanding the unique characteristics of different sponge varieties is essential for targeted applications.

Sustainability and Conservation:

Sponge farming represents a sustainable alternative to traditional sponge harvesting, which often leads to overexploitation of natural sponge populations. By cultivating

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sponges, it becomes possible to meet market demand while conserving wild sponge populations and preserving marine ecosystems.

Challenges and Research:

Sponge farming faces challenges related to disease management, environmental variability, and the need for continuous monitoring. Ongoing research focuses on improving cultivation techniques, enhancing disease resistance, and developing new varieties. Innovation in sponge farming contributes to the industry's sustainability.

Global Significance:

Sponge farming is practiced globally in regions such as the Mediterranean, the Caribbean, and the Asia-Pacific. The industry's global significance lies in its potential to meet market demands sustainably, supporting economic growth in various regions.

TRICHODERMA BIO-PESTICIDE

Context: The Indian Institute of Spices Research (IISR) in Kozhikode has successfully developed a new granular lime-based Trichoderma formulation called 'Tricholime'.

Details

- The development of the granular lime-based Trichoderma bio-pesticide and fertiliser, named 'Tricholime,' by the Indian Institute of Spices Research (IISR) in Kozhikode is a noteworthy advancement in agriculture.
- The project was led by the IISR Director and his team of scientists. Their efforts have resulted in a product that not only addresses specific agricultural challenges but also holds promise for further research and development in the field of bio-pesticides and fertilizers.

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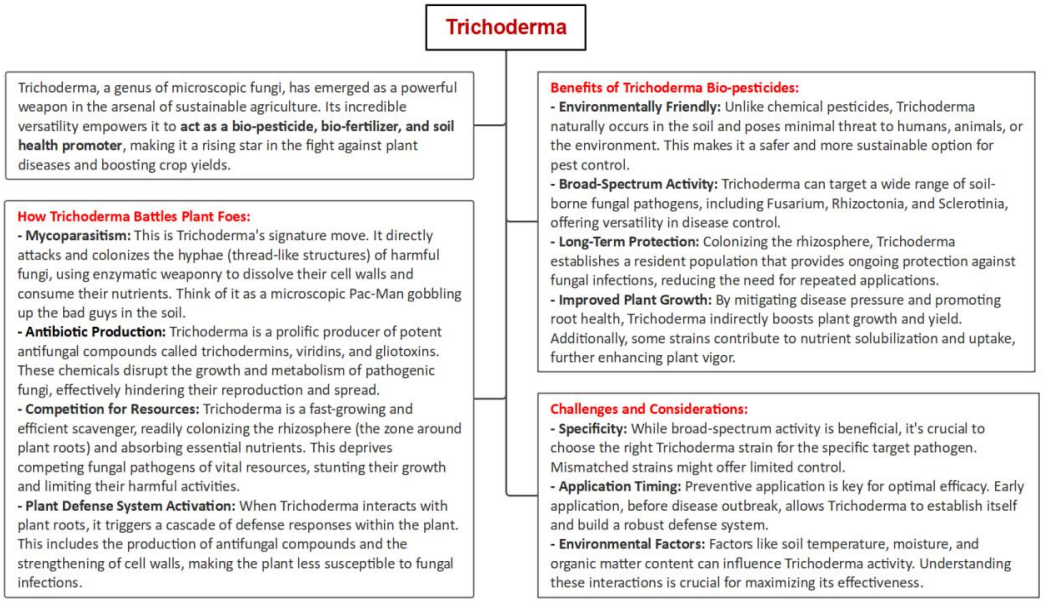
- The IISR hopes that the success of Tricholime can pave the way for the development of similar products integrating different bioagents. This could contribute to sustainable agricultural practices, benefiting both farmers and the environment.

About Tricholime

- Integrated Solution: Tricholime combines Trichoderma, a fungal biocontrol agent known for its effectiveness against soil-borne pathogens, with lime in a granular formulation. This integration aims to simplify the application process for farmers.
- Soil Acidity Neutralization: One of the significant features of Tricholime is its ability to neutralize soil acidity. This is crucial for maintaining optimal soil pH, which is essential for nutrient availability and uptake by plants.
- **Bio-Pesticide and Bio-Fertilizer:** Trichoderma has established itself as an effective bio-pesticide and bio-fertilizer. Its presence in the formulation helps in controlling various soil-borne pathogens while promoting plant growth. Additionally, it enhances the soil's microbial activity and improves nutrient availability.
- Single Application Benefit: The formulation's ability to address soil acidity, act as a bio-pesticide, and function as a bio-fertilizer, all in a single application, simplifies the farming process. This could lead to increased efficiency and cost-effectiveness for farmers.
- Support for Organic Farming: The scientists anticipate that the technology behind Tricholime could be extended to include other beneficial bioagents. This opens up possibilities for developing new products that support sustainable organic farming practices.



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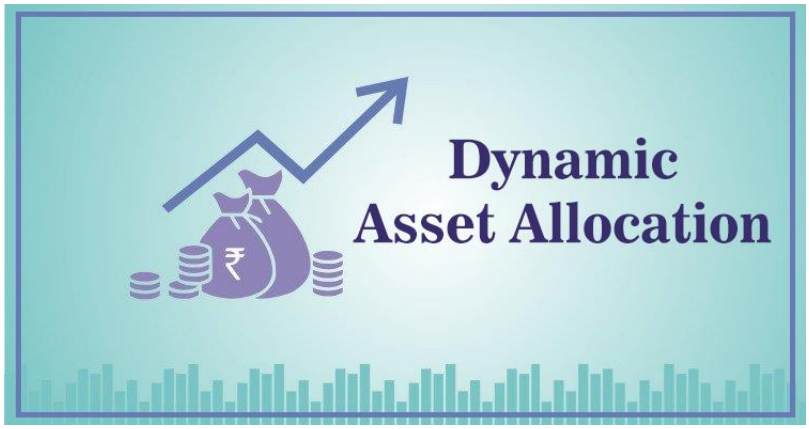
DYNAMIC ASSET ALLOCATION



PPFAS Mutual Fund, one of the most respected asset management companies in India, has recently applied to SEBI to launch a new open-ended dynamic asset allocation scheme.

About the dynamic asset allocation scheme

- A dynamic asset allocation scheme, also known as a balanced advantage fund, is a type of hybrid fund that invests in a mix of equity and debt instruments.
- The fund manager adjusts the allocation between equity and debt based on various market indicators, such as valuation, momentum, macroeconomic factors, etc.
- The aim is to capture the upside potential of equity markets while reducing the downside risk by shifting to debt when equity markets are overvalued or volatile.

Why is this category popular?

- Dynamic asset allocation or balanced advantage funds are one of the most popular categories in the Indian mutual fund industry.
- The popularity of this category can be attributed to its ability to offer a balanced exposure to equity and debt markets, which can suit investors with moderate risk appetite and long-term investment horizon.
- These funds can also offer tax efficiency, as they are treated as equity funds for taxation purposes if they invest at least 65% of their assets in equity and equity-related instruments.

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Proposed scheme by PPFAS Mutual Fund

- According to the draft offer document filed with SEBI, the proposed scheme by PPFAS Mutual Fund will be called Parag Parikh Dynamic Asset Allocation Fund.
- It will invest 0-100% of its assets in equity and equity-related instruments, including derivatives, and 0-100% of its assets in debt and money market instruments, including securitized debt.
- It will also have the flexibility to invest up to 35% of its assets in units of real estate investment trusts (REITs) and infrastructure investment trusts (InvITs).
- It will follow a value-oriented approach to select equity investments, with a focus on companies that have sustainable business models, competitive advantages, strong corporate governance and reasonable valuations.
- It will also have a global diversification strategy, as it can invest up to 35% of its assets in foreign securities, including American Depository Receipts (ADRs), Global Depository Receipts (GDRs), exchange-traded funds (ETFs) and overseas mutual funds.
- It will use a quantitative model to determine the optimal allocation between equity and debt, based on various parameters such as price-to-earnings ratio, price-to-book value ratio, dividend yield, interest rate, inflation rate, etc.
- The minimum investment amount for the scheme will be Rs 1,000 for a lump sum and Rs 500 for a systematic investment plan (SIP).

What are the benefits of investing in this scheme?

The proposed scheme by PPFAS Mutual Fund can offer several benefits to investors who are looking for a balanced and diversified portfolio that can adapt to changing market conditions. Some of the benefits are:

- The scheme can offer exposure to both domestic and global equity markets, which can enhance the return potential and reduce the concentration risk.
- The scheme can offer exposure to REITs (Real Estate Investment Trusts) and InvITs (Infrastructure Investment Trusts), which can provide regular income and capital appreciation from real estate and infrastructure sectors.
- The scheme can offer tax efficiency, as it will be classified as an equity fund for taxation purposes.
- The scheme can offer lower volatility and downside protection by adjusting the equity-debt mix based on market indicators.

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- The scheme can offer professional fund management by experienced and qualified fund managers who have a proven track record of delivering superior risk-adjusted returns.

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