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MINISTRY OF SCIENCE AND TECHNOLOGY

MK Yadav Sir

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INDIAN EXPRESS

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PILATUS PC-7 MK II

(Syllabus: GS Paper 3 - Sci and Tech)

PILATUS PC-7 MK II

Two pilots were killed after their Indian Air Force training aircraft crashed during a routine sortie

ARJUN SENGUPTA & AMRITA NAYAK DUTTA
NEW DELHI, DECEMBER 4

THE TRAINER AIRCRAFT had taken off from the Air Force Academy at Dundigal, Telangana, and its charred wreckage was found some 40 km away. A Court of Inquiry has been ordered to ascertain the cause of the accident, an IAF statement said. This is the first crash involving this aircraft since it entered the IAF fleet in 2013.

Trainer aircraft

Trainer aircraft are designed specifically to facilitate the training of pilots and air crew. Modern military aircraft are complex, and hence difficult to master for novices. Thus, pilots are first trained on more forgiving aircraft — which fly slower, have simpler operating systems, and are designed to be resistant to stalls and spins — than what they would eventually fly. Compared to fighter aircraft, trainers are also relatively inexpensive.

Types of trainer aircraft

The IAF currently operates 75 Pilatus PC-7 Mk II aircraft (including the one that crashed). These are used for basic training, the first stage in a rookie cadet's flight training. After this, cadets graduate to the HAL Kiran, an indigenously-developed jet-powered intermediate trainer, followed by the BAE Hawk, a British jet-powered advanced trainer. Currently, the IAF has 78 Kiran and 102 Hawk aircraft in its fleet. The IAF also operates 72 Pipistrel Virus aircraft, lightweight basic trainers jointly produced by Italy and Slovenia.

The Pilatus PC-7 Mk II

Pilatus Aircraft Ltd is a Swiss aerospace manufacturer that specialises in building trainer aircraft.

The PC-7, in operation since the 1970s, is a low-wing, turbo-prop aircraft with tandem seating (cadet sits in front, the instructor behind). The Mk II version was introduced in the 1990s, with a newer airframe and advanced avionics. It has a maximum speed of 412 kph and can fly at a maximum altitude of 10,000 m. It has a range of about 1,200 km.

It has been used as the *ab initio* trainer (the first aircraft a cadet flies after training on simulators) by over 20 air forces in the world. Countries like Iran and Mexico have also used it in combat operations.

A Swiss PC-7 aerobatics team
Wikimedia Commons

The IAF's requirements

In 2012, the IAF signed a contract to procure the PC-7 to meet a critical shortage of trainer aircraft needed to carry out the basic flight training. The shortage emerged after the indigenously developed HPT-32 was grounded in 2010, after multiple fatal crashes. All 75 ordered aircraft were delivered between 2013 and 2015.

IAF's basic trainers in future

In March, the Defence Ministry signed a contract with Hindustan Aeronautics Ltd to procure 70 HTT-40 basic trainers at a cost of more than Rs 6,800 crore. The indigenously-built aircraft are scheduled to be delivered over a period of six years.

Context: Recently, **two Indian Air Force (IAF) pilots** lost their lives in a **tragic incident when their Pilatus PC-7 Mk II trainer aircraft** crashed during a routine training sortie from the Air Force Academy at Dundigal, Telangana.

Pilatus PC-7 Mk II trainer Aircraft

- **About:** A trainer is a class of aircraft designed specifically to facilitate flight training of pilots and aircrews.
- **Trainer Planes**: Slow, simple, and spin-proof - perfect for clumsy cadets, not supersonic jets.
- **Types of Trainer Aircraft the IAF have**:
  - 75 Pilatus PC-7 Mk II aircraft in service with the IAF (including the one which crashed).
  - HAL Kiran, an intermediate jet-powered indigenously developed trainer aircraft,
  - BAE Hawk, a British jet-powered advanced trainer aircraft.

Pilatus PC-7 Mk II

- **Manufactured by**: Pilatus Aircraft Ltd, an aerospace manufacturer located in Stans, Switzerland.
- **About**: It specialises in producing short take-off and landing aircraft, as well as trainer aircraft for air forces across the world.
  - The **PC-7 is a low-wing, turbo-prop aircraft** with tandem seating (the cadet sits in the front, the instructor behind him).
  - The **Mk II version was introduced in the 1990s**, with a newer airframe and more advanced avionics.

HINDUSTAN TIMES

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CHANDRAYAAN 3

Syllabus GS Paper 3 - Sci and Tech)

{ CHANDRAYAAN-3 }

Propulsion module moved to earth's orbit

Soumya Pillai

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NEW DELHI : The propulsion module (PM) of Chandrayaan-3 was moved from an orbit around the Moon to an orbit around the Earth, the Indian Space Research Organisation (Isro) said in a statement on Monday.

On August 23, the Indian space agency created history by successfully landing the Chandrayaan-3 spacecraft near the lunar south pole, a feat that has not been achieved by any country before this.

Isro scientists said that the primary objective of PM was to ferry the lander module from geosynchronous transfer orbits to the final lunar polar circular orbit and separate the lander. After the separation, the Spectro-polarimetry of Habitable Planet Earth payload in the PM was also operated, Isro said.

"The initial plan was to operate this payload for about three months... The precise orbit injection... and optimal earth/ lunar burn manoeuvres, resulted in the availability of over 100kg fuel in PM after over one month of operations in the lunar orbit. It was decided to use the fuel to derive additional information for future missions..." the statement added.

Context: Recently, the **Indian Space Research Organisation (ISRO) announced** that the **propulsion module (PM) of Chandrayaan-3 was relocated** from an orbit around the Moon to an orbit around the Earth.

Chandrayaan 3

- **About**: It is a follow-on mission to Chandrayaan-2 to demonstrate end-to-end capability in safe landing and roving on the lunar surface.
- **Launched by**: Geosynchronous Satellite Launch Vehicle Mark III (LVM3 –M4).
- **Significance**: India became the first nation to soft-land on the surface of the Lunar south pole and overall the fourth to do a soft landing on moon.
- **Objective:** Demonstrate safe and soft landing on the surface of the Moon,
  - Conduct rover operations on the Moon, and
  - Conduct on-site experiments on the Lunar surface.
- **Components**: 'Vikram' Lander (equipped with Laser Doppler Velocimeter), 'Pragyaan' Rover (no orbiter unlike Chandrayaan 2).
- **The mission has six tools for studying science** and an additional instrument on the propulsion module.
- **Propulsion Module**: It carries the SHAPE experiment, which uses spectropolarimeter to study Earth's reflected light.
- The mass of the **propulsion module** used in Chandrayaan-3 is 2148 kg.

Reason for Landing on South Pole:

- Interest in the lunar south pole as a landing site is mainly driven by the fact that scientists know the region hosts water in the form of ice.
- It can act as a coolant for equipment and even provide rocket fuel. The latter could be especially useful for a staging mission to Mars launched from the moon someday.
- **Name of landing Site**: Shiv Shakti Point.

PIB

Dec 4

CHHATRAPATI SHIVAJI MAHARAJ

(Syllabus: GS Paper 1 – History)

PM unveils Statue of Chhatrapati Shivaji Maharaj at Rajkot Fort, Sindhudurg, Maharashtra

Context: The Prime Minister of Indiai unveiled the **statue of Chhatrapati Shivaji Maharaj at Rajkot Fort, Sindhudurg, Maharashtra.**

Chhatrapati Shivaji Maharaj

- **Founder:** Maratha Empire in western India, carving out his own independent kingdom from the declining **Adilshahi sultanate of Bijapur**.
- **Early Life**: Shivaji was born in the hill-fort of Shivneri, near the city of Junnar, which is now in Pune district.
- **Family**: Shivaji's **father, Shahaji Bhonsle,** was a Maratha general who served the Deccan Sultanates His **mother was Jijabai, the daughter of Lakhuji Jadhavrao** of Sindhkhed.
- **Titles**: Shakakarta, Kshatriya Kulavantas and Haindava Dharmodhhaarak.
- **Conflict with Bijapur**: Shivaji's father, **Shahaji, served as a general in the Bijapuri Sultanate**, which was a collaborative alliance involving Bijapur, Ahmednagar, and Golconda.
- **Shivaji's rising power under Bijapur, seizing lands for his own**, rattled Sultan Mohammed Adil Shah, leading to Shahaji's imprisonment in 1648.
- **Battle of Pavan Khind**: It was a rearguard last stand that took place on 13 July 1660, at a mountain pass in the vicinity of fort Vishalgad, near the city of Kolhapur by the Maratha against the Bijapur Sultanate.
- **Battle of Purandar, 1665**: Fought between the Mughal Empire and Maratha Empire.
- **Administration of Shivaji**: It was assisted by a council of ministers called **Ashtapradhan (eight ministers).**

CLIMATE FINANCE

(Syllabus: GS Paper 3 – Env and Eco)

COP28

Climate finance in spotlight

Saudi leaders skip flagship event after crown prince stays away

SIMON JESSOP, HADEEL AL SAYEGH & YOUSEF SABA
Dubai, December 4

MONEY PLEDGES STACKED up at COP28 in Dubai on Monday as delegates sought to address the huge gap between what is needed in climate finance and the amounts so far on offer. The United Arab Emirates, the host of this year's conference, pledged to mobilise $270 billion in green finance by 2030 through its banks, and several development banks announced plans to increase their funding efforts, including by agreeing to pause debt repayments if a climate-related disaster hits.

But leaders of the region's biggest economy and biggest OPEC oil producer Saudi Arabia have so far not attended the UN summit, in contrast to their participation in last year's COP27 conference in Sharm el-Sheikh, Egypt.

On Monday, Prince Abdulaziz bin Salman, energy minister and the key climate negotiator, for the kingdom, was a no-show at the Saudi Green Initiative, a side event showcasing the country's clean energy plans.

De facto ruler Crown Prince Mohammad bin Salman also did not deliver a speech to world leaders as scheduled on Friday.

As tensions ran high over differing visions for the future of fossil fuels, COP28 President Sultan al-Jaber defended his role after the Guardian newspaper quoted him as questioning the science behind the need to "phase out" fossil fuels.

Al Jaber has also drawn criticism linked to his role as CEO of ADNOC, the UAE's state-owned oil company.

"I am quite surprised with the constant and repeated attempts to undermine the work of the COP28 presidency," Al Jaber told a news conference. "We very much believe and respect the science."

Climate activists protest against fossil fuel emitters, demanding more contributions to the Loss and Damage Fund during COP28 REUTERS

Vast needs

The amount of cash needed for the energy transition, climate adaptation and disaster relief is overwhelming. A report released on Monday estimated that emerging markets and developing countries will need $2.4 trillion a year in investment to cap emissions and adapt to the challenges posed by climate change. "The world is not on track to realise the goals of the Paris Agreement. The reason for this failure is a lack of investment, particularly in emerging market and developing countries outside China," said co-author Nicholas Stern, chair of the Grantham Research Institute on Climate Change and the Environment.

The 2015 the Paris conference set a goal of limiting global warming to well below 2 degrees Celsius (3.6 degrees Fahrenheit), while aiming for a cap of 1.5C.

"The central challenge is to accelerate and implement the fostering and financing of this investment from a range of sources," Stern said.

Vulnerable countries that are already being hit by costly climate disasters are asking for billions more through a newly formed disaster fund. Pledges to the fund so far total around $700 million. —REUTERS

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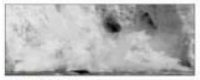

- Nations on the edge are demanding more funds
- Pledges to the fund so far total around $700 mn, not enough

0.1% tax on financial services could raise **$420 bn,** Barbados PM said

- UN's Antonio Guterres have called for an end to fossil fuel subsidies

Context: Recently, **money pledges stacked up at COP28** in Dubai as delegates sought to address the **huge gap between what is needed in climate finance** and the amounts so far on offer.

Climate Finance

- **About**: Climate financing encompasses various funding sources, whether local, national, or transnational, that aim to facilitate climate change mitigation and adaptation efforts, drawing from public, private, and alternative channels.

Global Climate Financial Mechanisms

- **Global Environmental Facility**: The GEF, established on the eve of the 1992 Rio Earth Summit, is a catalyst for action on the environment. Through its strategic investments, the GEF works with partners to tackle the planet's biggest environmental issues.
- **Least Developed Countries Fund (LDCF)**: The LDCF was established in 2001 to support a work programme to assist LDCs carry out, inter alia, the preparation and implementation of national adaptation programmes of action (NAPAs).
- **Special Climate Change Fund**: It was created in 2001 to address the specific needs of developing countries under the UNFCCC to adapt to the impact of climate change and increase resilience.
- **The Adaptation Fund (AF)**: The AF was established in 2001 to finance concrete adaptation projects and programmes in developing country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change.
- **Clean development mechanism**: The CDM, defined in Article 12 of the Protocol, allows a country with an emission-reduction or emission-limitation commitment under the Kyoto Protocol (Annex B Party) to implement an emission-reduction project in developing countries.
- **The Green Climate Fund (GCF)**: It was set up in 2010 under the UNFCCC's financial mechanism with aim to expand collective human action to respond to climate change.
- **Importance:** Climate finance in addressing global climate change challenges and promoting sustainable development.

PIB

Dec 4

UNLF AND NRFM

(Syllabus: GS Paper 3 – Internal Security)

Following the Peace Agreement between United National Liberation Front (UNLF), Government of Manipur and Government of India, leaders/cadres of National Revolutionary Front Manipur (NRFM) have joined UNLF

Context: Recently, as **Manipur's oldest valley-based armed group, the United National Liberation Front (UNLF)**, inked a peace agreement with the Centre, **another Meitei group, the National Revolutionary Front Manipur (NRFM)**, has also recently joined the peace process.

United National Liberation Front (UNLF)

- **About:** It is a separatist insurgent group active in the state of Manipur in Northeast India.
- **Formation**: On November 24, 1964,
- **Aim**: Establishing a sovereign and socialist Manipur.
- **Also known as**: United National Liberation Front of Manipur
- **Other information**: The UNLF is believed to have received its initial training from the NSCN (IM), the largest Naga insurgent group.
    - A proscribed group, **banned under the Unlawful Activities Prevention Act (UAPA),** it has largely been functioning from camps and training bases in Myanmar's Sagaing Region, Chin state, and Rakhine state with the patronage of the Myanmar military.

National Revolutionary Front Manipur (NRFM)

- **Formation**: On September 11, 2011 by cadres of three factions of KCP, a Meitei UG outfit.
- **Earlier known as**: United Revolutionary Front. Its **leaders operated from bases in a neighbouring country** and were involved in **violence and extortion** in various parts of the Manipur Valley.

TRIBUNE

Dec 4

MOUNT MERAPI

(Syllabus: GS Paper 1 – Geography)

Eleven climbers killed as Indonesia's Marapi volcano erupts

Context: Recently, eleven climbers were found dead in Indonesia following the eruption of the Marapi volcano in West Sumatra.

Mount Merapi

- **About**: It is an active stratovolcano located on the border between the province of Central Java and the Special Region of Yogyakarta, Indonesia.
  - It is the most active volcano in Indonesia and has erupted regularly since 1548.
- **Located**: Approximately 28 km (17 mi) north of Yogyakarta city, Indonesia.
- **History**: Merapi is the youngest in a group of volcanoes in southern Java. It is situated at a subduction zone.
  - It is one of at least 129 active volcanoes in Indonesia, part of the volcano is located in the Southeastern part of the **Pacific Ring of Fire.**

Pacific's Ring of Fire

- **Also known as**: Circum-Pacific Belt, is a path along the Pacific Ocean characterized by active volcanoes and frequent earthquakes.
- **Length**: Approximately 40,000 kilometers.
- **Boundaries between several tectonic plates**: Pacific, Juan de Fuca, Cocos, Indian-Australian, Nazca, North American, and Philippine Plates.
- **Home of Volcanoes**: More than 450 active and dormant volcanoes (75% of Earth's total volcanoes) form a semicircle or horseshoe around the rim of the Pacific Ocean.

SECURITIES APPELLATE TRIBUNAL

(Syllabus: GS Paper 3 – Economy)

SAT throws out Sebi's order against Ambani, two SEZs

Case relates to alleged manipulative trades in shares of erstwhile Reliance Petroleum

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MUMBAI

Reliance Industries managing director Mukesh Ambani. HINDUSTAN TIMES

The Securities Appellate Tribunal (SAT) has quashed the markets regulator's 2021 order against Reliance Industries Ltd (RIL) managing director Mukesh Ambani, the Navi Mumbai Special Economic Zone (SEZ) and the Mumbai SEZ in a case related to alleged manipulative trades in shares of the erstwhile Reliance Petroleum Ltd.

In January 2021, the Securities and Exchange Board of India (Sebi) imposed a penalty of ₹25 crore on RIL and ₹15 crore on Ambani. It had also asked the Navi Mumbai SEZ to pay a penalty of ₹20 crore. Ambani along with RIL and other entities had challenged the order before the SAT.

On Monday, a SAT bench led by Justice Tarun Agarwala held that Sebi's order against Ambani, the Navi Mumbai SEZ and the Mumbai SEZ stood quashed. It also directed the regulator to refund any penalty if already deposited.

The tribunal, however, dismissed Reliance's appeal in the case. In essence, this means the Sebi order on RIL stands operational, including the penalty levied on the company.

₹15 cr Penalty imposed by Sebi on Ambani in January 2021

The case pertains to the sale and purchase of Reliance Petroleum shares in the cash and futures segments in November 2007. Subsequently, RIL decided to sell a nearly 5% stake in Reliance Petroleum, a listed subsidiary that was later merged with RIL in 2009.

Sebi adjudicating officer B.J. Dilip had held that "general investors were not aware that the entity behind the above (futures and options) segment transactions was RIL. The execution of the...fraudulent trades affected the price of the RPL securities in both cash and F&O (futures and options) segments and harmed the interests of other investors".

Sebi, in its order, had also stated that RIL had engaged in a scheme of manipulative trading in respect of the sale of RIL's 5% stake in Reliance Petroleum. It had said that RIL, before undertaking sale transactions in the cash segment, had booked large short positions in Reliance Petroleum November futures through 12 agents with whom it had entered into an agreement to circumvent position limits for a commission payment.

As a result, RIL fraudulently cornered nearly 93% of open interest in Reliance Petroleum November futures, when the agents took short positions in the F&O segment on its behalf, Sebi had said in its order. The funding for the margin payments by the agents was provided by the Navi Mumbai SEZ and the Mumbai SEZ, it had said.

₹20 cr Penalty imposed on Navi Mumbai SEZ in January 2021

On Monday, the SAT bench said it was not possible for the Navi Mumbai SEZ and Mumbai SEZ to have known that RIL would sell shares in the cash segment in November 2007, and that RIL would take positions in the futures segment through its agents, as alleged by one of Sebi's whole-time members in 2021.

Sebi in its order had said a common person connected with RIL had placed orders in the cash segment on behalf of RIL and in the F&O segment on behalf of the agents.

As for the SAT dismissing RIL's appeal in the case, Ravishekhar Pandey, practice head, securities and capital market, at law firm MDP & Partners, explained that as the company was in appeal before the Supreme Court against a 2020 order of the SAT, "the fate of its recent appeal was known, except for adjudication on the quantum of penalty".

"The order under challenge was passed by the adjudicating officer of Sebi. On the same investigation, the whole-time member of Sebi had passed an order which was upheld by the tribunal vide its order dated 5 November 2020 (with a 2:1 majority)," he added.

Context: Recently, the **Securities Appellate Tribunal (SAT) overturned the 2021** order by the markets regulator against Reliance Industries Ltd (RIL) and the Navi Mumbai Special Economic Zone (SEZ) in a case involving alleged manipulative trades in shares of the former Reliance Petroleum Ltd.

Securities Appellate Tribunal (SAT)

- **About:** It is a statutory and autonomous body.
- **Establishment**: Under the provisions of the Securities and Exchange Board of India Act, 1992.
- **Composition**: Presiding officer, Judicial members and technical members.
- **Appointment**: The appointment of Presiding officer and other members of SAT is done by a committee headed by Prime Minister of India.
- **Powers:**
  - Orders issued by the **Insurance Regulatory and Development Authority of India** (IRDAI) in relation to cases filed before it.
  - **Orders issued by the Pension Fund Regulatory and Development Authority** (PFRDA) in relation to cases filed before it.
  - Hear the orders passed by Securities and Exchange Board of India.

Securities and Exchange Board of India (SEBI)

- **Establishment**: As a statutory body in the year 1992.
- **Headquarters**: Mumbai, Maharashtra
- **Ministry**: Ministry of Finance
- **Aim**: To protect the interests of investors in securities and to promote the development of, and regulate the securities market.

HINDUSTAN TIMES

Dec 4

WHITE LUNG SYNDROME

(Syllabus: GS Paper 3 – Sci and Tech)

What is white lung syndrome? Signs, symptoms and preventive measures of mystery pneumonia

Context: Recently, **after the outbreak of mystery pneumonia** among China's pediatric population, a similar illness referred to as the **White Lung Syndrome** has been recently raising child hospitalization cases in Ohio, US.

White Lung Syndrome

- **About:** The term was first associated with an outbreak of a respiratory illness in China. This syndrome is emerging as a new health issue of global concern.
  - "White Lung Syndrome" is **not a scientific terminology**.
- **Caused by**: It's a respiratory infection caused by multiple microorganisms (influenza, mycoplasma etc) leading to development of pneumonia.
- **Symptoms**: White patches in the lung are formed all over the organ, fever, cough, sore throat, watery eye skin rash or symptoms like diarrhoea.
- **Treatment**: Mainly focused on addressing the symptoms of pneumonia and ensuring the respiratory health of the patients.
  - **Medicines are given to alleviate symptoms like cough and fever**. overall monitoring must be done and oxygen therapy provided if necessary.

BUSINESS STANDARD

Dec 4

NCRB REPORT ON CYBERCRIME

(Syllabus: GS Paper 3 – Sci and Tech)

Cyber crime cases in Delhi nearly doubled in 2022 from 2021: NCRB report

Context: Recently, the **National Crime Records Bureau (NCRB) released a report** indicating that cases of cybercrime in the **national capital nearly doubled in 2022.**

Key Highlights of Report

- According to report, a **majority of cases related to cruelty by spouses or their relatives** (31.4%) followed by kidnapping and abduction (19.2%), assault "with Intent to outrage modesty" (18.7%), and rape (7.1%).
- A **maximum rape cases were reported from Rajasthan in 2022**, followed by Uttar Pradesh, Madhya Pradesh, Maharashtra and Haryana.
- Cases of **crimes against children were registered during 2022**, showing an **increase of 8.7%** (1,49,404 cases) compared to 2021.
- Crime against senior citizens rose by 9.3% compared in 2021.
- **The NCRB report said the economic offences increased by 11.1%**, corruption cases 10.5% increase.

National Crime Records Bureau (NCRB)

- **About:** It is an Indian government agency responsible for collecting and analyzing, crime data as defined by the Indian Penal Code (IPC) and Special and Local Laws (SLL).
- **Set Up**: In 1986 recommendations of the Tandon Committee to the National Police Commission (1977-1981) and the MHA's Taskforce (1985).
- **Headquarters**: New Delhi
- **Nodal Ministry**: Ministry of Home Affairs
- **Mission**: To provide Indian Police with Information Technology and Criminal Intelligence to enable them to uphold law and protect people.

NEW INDIAN EXPRESS

Dec 4

ABELMOSCHUS ODISHAE

(Syllabus: GS Paper 3 – Env and Eco)

Odia scientist discovers disease resistant wild okra

Context: A scientist from the **Indian Council of Agricultural Research (ICAR)** recently **discovered a new plant species of 'wild okra'** named 'Abelmoschus Odishae'.

Abelmoschus Odishae

- **Wild Okra' Plant Species**: Found in the lush, moist deciduous forest of Banspal block in Keonjhar district, Odisha.
- **Hybridization Potential**: This species holds promise for hybridization, offering an avenue to develop improved varieties with heightened disease resistance.
- **Genetic Diversity**: This discovery introduces an opportunity to expand the genetic diversity of okra, potentially contributing to its resilience and adaptability.
- **Characteristics**: The seeds are sub-reniform, accompanied by short, stout, non-spiral trichomes, contributing to their unique structure and appearance.

Okra

- **About**: Okra, alternatively known as gumbo or ladies' fingers, thrives as a warm-season vegetable.
- **Origin and Distribution**: Native to the Eastern Hemisphere tropics, okra is extensively cultivated or naturalized in the Western Hemisphere's tropics and subtropics.
- **Color Varieties**: Present in both green and red varieties, okra offers a visually diverse range.
- **Mallow Family**: Belonging to the mallow family of botanicals, which includes cocoa and cotton, okra shares its botanical lineage.
- **Nutrient-rich Composition**: As a nutrient powerhouse, okra serves as an excellent source of minerals, vitamins, antioxidants, and dietary fiber.
- **Culinary Application**: The sticky juice within okra pods is commonly utilized to thicken sauces in various culinary applications.

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