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dbGENVOC

- It is the world's first of its kind database of genomic variations in oral cancer created by National Institute of Biomedical Genomics (NIBMG).
- dbGENVOC has a built-in powerful search engine. So, it is a browsable free resource.
- It contains somatic and germline variants derived from whole exome sequences of oral cancer patients and also whole genome sequences of patients from India, the USA and analyzed by TCGA-HNSCC project.
- It allows a reasonable extent of statistical and bioinformatic analysis to be carried out online.
- The repository will be updated annually with variation data from new oral cancer patients from different regions of India and Southeast Asia.

National Institute of Biomedical Genomics

- The DBT-National Institute of Biomedical Genomics (NIBMG), Kalyani (West Bengal) has been established as an autonomous institution by the Government of India.
- It is funded by the Department of Biotechnology (DBT), Ministry of Science and Technology.
- It is the first institution in India explicitly devoted to research, training, translation & service and capacity-building in Biomedical Genomics.
- **Research focus of the institute** - To understand the molecular basis of disease using genomics and integrative biology, as well as functionalization of genomic leads.
- Such knowledge is translated for enhanced prediction, prevention and cure and also provides us with the insight into mechanism of disease development and progression.

Oral Cancer

- Oral cancer is the most prevalent form of cancer among men in India, largely fuelled by tobacco-chewing.
- Tobacco-chewing causes changes in the genetic material of cells in the oral cavity. These changes (mutations) precipitate oral cancer.
- Researches to identify those genetic mutations that drive oral cancer are

ongoing. Such driver mutations may be variable across populations.

Shift in September Monsoon Rainfall

- A recent research showed that monsoon precipitation is sensitive to the choice of irrigation practices in South Asia.
- It investigated the impact of agricultural water use on the Indian Summer Monsoon using a climate model.
- It found that excess irrigation over northern India shifts the September monsoon rainfall towards the north-western part of the subcontinent increases widespread weather extremes over Central India.
- This is also caused by an increase in irrigation and consequent increase in evapotranspiration [Evapotranspiration is the sum of evaporation from the land surface plus transpiration from plants.]
- Meteorological hazards exposes the vulnerable farmers and their crops to risks of failure.
- Increasing crop risk is predominantly driven by the decreasing number of farmers, and the wheat risk is also attributed to increasing minimum temperatures during the crop growing season.
- The findings on irrigation-monsoon feedbacks and the agri-cartographic products will directly benefit the National Initiative on Climate Resilient Agriculture by the GoI.

National Initiative on Climate Resilient Agriculture

- National Initiative on Climate Resilient Agriculture (NICRA) was launched in 2011 by Indian Council on Agricultural Research (ICAR) to enhance the resilience of agriculture to climate change.
- [ICAR is an autonomous body responsible for coordinating agricultural education and research in India that reports to the Department of Agriculture and Research (DARE) in the Ministry of Agriculture.]
- NICRA recognizes India's vulnerability to climate change with nearly half of its population dependent on agriculture. Objectives of NICRA are,
    - **Research** to improve production and risk management so as to enhance climate resilience of Indian agriculture.
    - **Technology demonstration** to enable vulnerable districts in coping with climate change through demonstration of site specific technologies on farmer s fields.
    - **Capacity building** of scientists and other stakeholders in climate resilient research.
- To know more about the National Initiative on Climate Resilient Agriculture, click here.

Ministry of Co-operation

- A separate 'Ministry of Co-operation' has been created by the Modi Government for realizing the vision of 'Sahkar se Samriddhi'.
- This ministry will provide a separate administrative, legal and policy framework for strengthening the cooperative movement in the country.
- It will work to streamline processes for 'Ease of doing Business' for co-operatives and help in development of Multi-State Co-operatives.

Black Leopard

- Sightings of the rare Black Leopard (Melanistic Leopard) were reported in the Navegaon Nagzira Tiger Reserve (NNTR), Tadoba Andhari Tiger Reserve and the Pench Tiger Reserve in Maharashtra.
- Black Leopard or Black Panther (Ghost of the Forest) is a melanistic colour variant of spotted any Panthera, particularly of the leopard (P. pardus) in Asia and Africa, and the jaguar (P. onca) in the Americas.
    - Melanism is a common occurrence in leopards. A melanistic leopard or jaguar is mistakenly thought to be a different species.
- **Habitat** - They are mainly in Southwestern China, Burma, Nepal, Southern India, Indonesia, and the southern part of Malaysia.
- In India, they are reported from densely forested areas of South India, mostly from the state of Karnataka.
- **Threats** - Habitat loss, Poaching, Diseases, Human encroachment, Collision with vehicles, etc.,
- **Conservation** - It is listed in IUCN Red List (Vulnerable), CITES (Appendix I), Wildlife Protection Act, 1972 (Schedule I).

King Cobra

- A king cobra (Ophiophagus hannah), was sighted in the recently declared conservation reserve, Tillari, in Sindhudurg district, Maharashtra.
- It is one of the most venomous snakes on the planet. It is the longest of all venomous snakes as it can reach 18 feet in length.
- **Venom** - Their venom is not the most potent among venomous snakes, but the amount of neurotoxin they can deliver in a single bite is enough to kill 20 people, or even an elephant.
- King cobra venom affects the respiratory centers in the brain, causing respiratory arrest and cardiac failure.
- **Habitat** - King cobras live mainly in the rain forests and plains of India, southern China, and Southeast Asia.
- They are comfortable in a variety of habitats, including forests, bamboo thickets, mangrove swamps, high-altitude grasslands, and in rivers.

- They are the only snakes in the world that build nests for their eggs, which they guard ferociously until the hatchlings emerge.
- **Threats** - Heavy deforestation; Habitat destruction. They are harvested for skin, food, and medicinal purposes; international pet trade. They are persecuted by humans who fear their menacing reputation.
- **Conservation** - The International Union for Conservation of Nature has listed the king cobra as vulnerable to extinction.
- CITES (Appendix II) and Wildlife Protection Act, 1972 (Schedule II).

Flex Fuel Vehicles

- The Government may issue guidelines for Flex Fuel Vehicles (FFV) soon.
- FFV or "dual-fuel vehicle" is a modified version of vehicles that which comprises of the internal combustion engine which could run both on gasoline and blended petrol with either ethanol or methanol fuel.
- [Ethanol blends - E12 fuel is a blend of 12% ethanol in gasoline, while E 15 fuel is a blend of 15% ethanol in gasoline.]
- Both of the fuels are stored in same common tank. The fuel injection and spark timing are automatically adjusted in accordance with the actual blend detected by the fuel composition sensor.
- **FFV is different from the bi-fuel vehicles** - In the bi-fuel vehicle, two fuels are stored in the separate tanks and engine runs on one fuel at a time.

Source: PIB, The Indian Express, National Geographic

SHANKAR IAS PARLIAMENT
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