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समाचार पत्रों से चयित अंश

Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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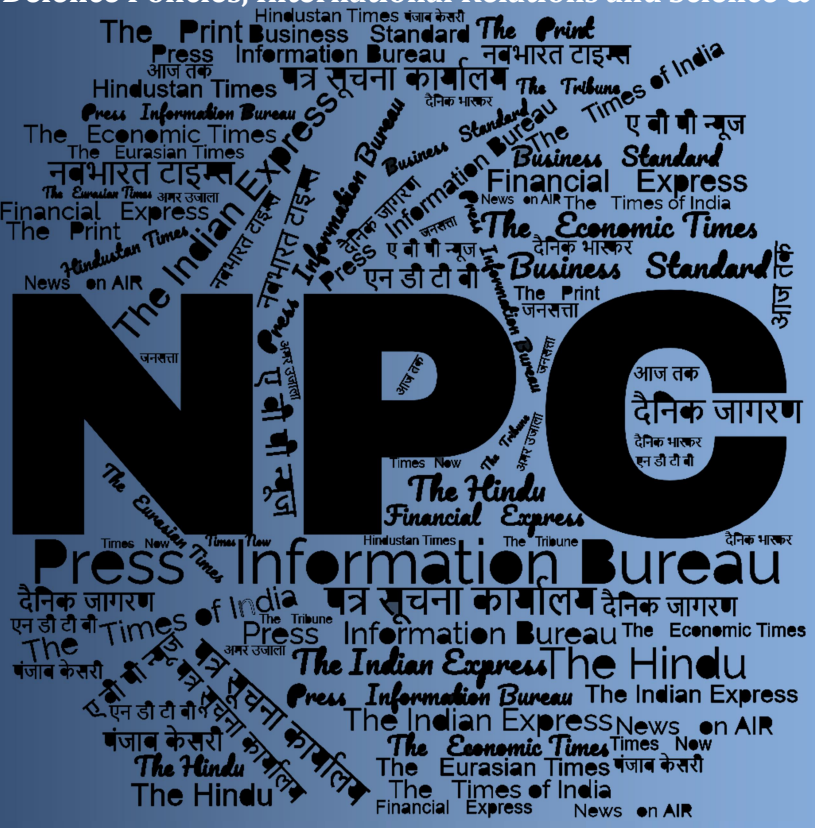

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THE ECONOMIC TIMES

Wed, 05 Apr 2023

First Series Production LCA Tejas Trainer Carries out First Flight

The first series production Light Combat Aircraft Tejas trainer aircraft carried out its first flight on Wednesday, a development described as a "major milestone" by its manufacturer Hindustan Aeronautics Limited. The aircraft took to the skies for its maiden flight from HAL's airport in Bengaluru, officials said.

The successful sortie lasted for around 35 minutes.

Tejas is a highly agile multi-role supersonic fighter aircraft capable of operating in high-threat air environments.

"As a major milestone in the LCA Tejas Program, the first ever series production standard LCA Trainer (LT 5201) manufactured by HAL took to the skies for its maiden flight today from HAL airport and landed after completing a successful sortie of around 35 minutes," the Hindustan Aeronautics Limited (HAL) tweeted.

https://economictimes.indiatimes.com/news/defence/first-series-production-lca-tejas-trainer-carries-out-first-flight/articleshow/99276008.cms

नवभारत टाइम्स

Wed, 05 Apr 2023

रूसी जिरकॉन की तूफानी रफ्तार से लैस होगी भारत की ब्रह्मोस-2 मिसाइल, दुनिया में सबसे शक्तिशाली

भारत और रूस ब्रह्मोस मिसाइल के हाइपरसोनिक वर्जन पर काम कर रहे हैं। इसे ब्रह्मोस-2 का नाम दिया गया है। भारत के राष्ट्रीय सुरक्षा सलाहकार अजीत डोभाल और उनके रूसी समकक्ष निकोलाई पत्रुशेव ने पिछले हफ्ते अपनी बैठक के दौरान ब्रह्मोस-2 के हाइपरसोनिक वेरिएंट के साझा डेवलपमेंट की संभावनाओं पर चर्चा की। शंघाई सहयोग संगठन के एनएसए स्तर की

बैठक से इतर दोनों देशों के एनएसए की मुलाकात के दौरान रूस से रक्षा आपूर्ति और रक्षा क्षेत्र में सहयोग पर बातचीत हुई। रूस हाइपरसोनिक मिसाइलों के डेवलपमेंट में अमेरिका और अन्य पश्चिमी देशों से आगे है। इसे आधुनिक युद्ध में गेम-चेंजर हथियार माना जाता है।

जिरकॉन मिसाइल की तकनीक से लैस होगा ब्रह्मोस-2

ब्रह्मोस-2 नाम की इस मिसाइल को बनाने में दुनिया की सबसे तेज गति से चलने वाली मिसाइल जिरकॉन की तकनीक का इस्तेमाल किया जाएगा। जिरकॉन दुनिया की सबसे तेज गति से चलने वाली हाइपरसोनिक मिसाइल है। जिरकॉन मिसाइल की गति 11000 किलोमीटर प्रति घंटा है और रेंज 1000 किलोमीटर तक की है। जिरकॉन को पनडुब्बी, युद्धपोत और जमीन पर मौजूद लॉन्च प्लेटफॉर्म से फायर किया जा सकता है। वहीं, वर्तमान में ब्रह्मोस दुनिया की एकमात्र ऐसी मिसाइल है जिसे जमीन, हवा, पानी और पनडुब्बी जैसे चार प्लेटफॉर्म से लॉन्च किया जा सकता है। इस मिसाइल को भारत और रूस ने संयुक्त रूप से विकसित किया है। ब्रह्मोस मिसाइल की वेरिएंट्स की रेंज 300 से 700 किलोमीटर के बीच है।

2027 में हो सकता है ब्रह्मोस-2 का पहला परीक्षण

रूसी समाचार एजेंसी तास के अनुसार, ब्रह्मोस एयरोस्पेस के सीईओ अतुल राणे ने बताया था कि ब्रह्मोस क्रूज मिसाइल के हाइपरसोनिक वेरिएंट ब्रह्मोस-2 का डेवलपमेंट अडवांस स्टेज में है। इस वेरिएंट में रूस की जिरकॉन मिसाइल की तकनीक का इस्तेमाल किया जाएगा। उन्होंने बताया था कि ब्रह्मोस-2 की पहली उड़ान 2027 या 2028 में आयोजित की जा सकती है। ब्रह्मोस-2 को रूस की रिसर्च एंड प्रोडक्शन एसोसिएशन ऑफ मशीन-बिल्डिंग (NPO Mashinostroeniya) और भारत के रक्षा अनुसंधान और विकास संगठन (DRDO) एक साथ मिलकर डेवलप कर रहे हैं।

ब्रह्मोस-2 की डिजाइन पर पहले से ही हो रहा है काम

ब्रह्मोस के सीईओ अतुल राणे ने बताया कि दोनों पक्ष ब्रह्मोस-2 के डिजाइन पर पहले से ही काम कर रहे हैं। उन्होंने कहा कि जैसे ही रूस से हमें जिरकॉन मिसाइल की तकनीक मिलेगी, हम इसे डेवलप करना शुरू कर देंगे। हमने पहले ब्रह्मोस-2 के परीक्षण को 2021 के लिए प्लान किया था, लेकिन कुछ दिक्कतों के बाद इसे 2024 के लिए निर्धारिक किया। अब लगता है कि 2027 में ही ब्रह्मोस-2 का परीक्षण किया जा सकता है। उन्होंने खुद बताया कि ब्रह्मोस-2 में जिरकॉन मिसाइल की कई विशेषताएं शामिल होंगी। हालांकि, यह रूस पर निर्भर करता है कि जिरकॉन की कौन सी तकनीक को वह प्रदान करेगा।

https://navbharattimes.indiatimes.com/world/rest-of-europe/india-first-hypersonic-missile-brahmos-2-could-be-modeled-on-russia-zircon-missile/articleshow/99268251.cms

Firstpost.

Wed, 05 Apr 2023

Public Sector Company Develops Titanium Alloys that will Make Battle Tanks Lighter

The public sector metallurgy division of the Defence Ministry known as Mishra Dhatu Nigam Ltd (Midhani) has created a titanium alloys hub employing cutting-edge titanium casting technology.

According to Midhani CMD Dr. SK Jha, this technology is expected to reduce the weight of main battle tanks.

Low maintenance costs are a result of titanium alloys' exceptional corrosion resistance and high strength-to-weight ratio.

It appears that the titanium alloy hub has been produced for the Zorawar Light Tank, which has been jointly designed by the DRDO and private sector company L&T.

The Zoarawar Light Tank is currently undergoing construction rollout and is expected to go into the trial phase later this year.

https://www.firstpost.com/india/public-sector-company-develops-titanium-alloys-that-will-make-battle-tanks-lighter-12412302.html

INDIA TODAY

Wed, 05 Apr 2023

Centre Extends Emergency Powers of Defence Forces by 6 Months to Tackle China

The defence forces have been given another six months to complete their pending acquisitions to buy weapons for the China border to further strengthen the preparedness of the forces.

The window of the emergency acquisition powers has been extended by another six months.

The forces will be able to buy weapons for which tenders have already been issued, defence sources informed India Today TV.

The forces now have the power to buy weapons to strengthen preparedness along the China border. A number of proposals have been stuck due to different issues and it will allow them to be cleared in the coming few months.

The armed forces have a long list of equipment they want to procure and will use the power to buy indigenous products only. The products must have at least 60 per cent indigenous content.

The Indian armed forces extensively utilised the emergency procurement powers granted to them in different phases by the government to equip themselves with the necessary weaponry to handle any conflict or aggression by the enemies on all sides.

https://www.indiatoday.in/india/story/centre-extends-emergency-powers-of-defence-forces-by-6-months-to-tackle-china-2356242-2023-04-05

United News of India
India's Multi Lingual News Agency

Wed, 05 Apr 2023

Five-day Capacity Building Prog at IIM Concludes in Visakhapatnam

Visakhapatnam, April 5 (UNI) The five-day Capacity Building Programme in General Management for DRDO Scientists ('D' & 'E'), conducted by the Indian Institute of Management (IIM), concluded here on Wednesday.

As many as 20 scientists from various DRDO Laboratories spread across the country participated in the program.

On the occasion, Dr Y Sreenivas Rao, Outstanding Scientist & Director NSTL while delivering the valedictory address said that the programme is highly useful and provided exposure to the participants on the innovative and successful management practices of an organisation in the R&D and technology transfer domains.

He congratulated the Program Directors Prof. B Srirangacharyulu and Prof. Deepika Gupta over the successful organisation of the program with selective topics of personal as well as organizational development.

http://www.uniindia.com/ap-five-day-capacity-building-prog-at-iim-concludes-in-visakhapatnam/south/news/2947368.html

INDIA TODAY

Thu, 06 Apr 2023

India and Japan Co-chair 7th Defence Policy Dialogue in New Delhi

The 7th India-Japan Defence Policy Dialogue, co-chaired by Defence Secretary Giridhar Aramane and Vice Minister of Defense for International Affairs Oka Masami, was held in New Delhi on April 5, 2023. A wide range of issues, including Service-level exercises and engagements, regional security issues and cooperation in defence equipment and technology, were discussed during the meeting. The Japanese vice minister also presented policy updates from their recently released National Security Strategy and National Defense Strategy.

Both countries appreciated the growing cooperation between the Services through Staff talks and exercises. They welcomed the inaugural fighter exercise 'Veer Guardian' between the Indian Air Force and Japanese Air Self Defence Force in January this year in Japan.

The defence secretary emphasised that both countries should aim to deepen collaboration between the respective defence industries. He also invited Japanese defence industries to look at investment opportunities in India under the 'Make in India' initiative. Both sides agreed to diversify cooperation in emerging domains like defence space and cyber. India and Japan reiterated their commitment towards a strong defence partnership and agreed to find opportunities to enhance bilateral cooperation further.

Both sides agreed to hold the next Defence Policy Dialogue at mutually convenient dates. The Defence Policy Dialogue is an institutionalised mechanism between India and Japan to discuss bilateral defence cooperation.

https://www.indiatoday.in/india/story/india-and-japan-co-chair-7th-defence-policy-dialogue-new-delhi-2356283-2023-04-06

FINANCIAL EXPRESS
Read to Lead

Wed, 05 Apr 2023

India and Romania Ink the First Ever Defence Cooperation Agreement; Focus on Indo-Pacific and more

India and Romania have taken a historic step in forging a deeper relationship between their respective armed forces with the signing of a Defence Cooperation Agreement. The agreement, which covers diverse areas such as training, defence equipment, technical assistance, military medicine, science, technology, research and development, marks the first such accord between the two nations.

Signed during a bilateral meeting in New Delhi on March 28th between Romania's Deputy Minister of Defence, Simona Cojocaru, and India's Defence Secretary Giridhar Aramane, the agreement represents Romania's special interest in enhancing bilateral dialogues with states in the Indo-Pacific region, in line with the EU Strategy for cooperation in this strategic and economically significant region.

Both countries are set to explore more areas for military cooperation through their respective ministries.

The State Secretary and Chief of the Department for Defence Policy, Planning and International Relations of Romania, Simona Cojocaru, also highlighted that Romanian defence companies can join forces with the Indian industry based on commercial agreements for co-production, sublicense production, or joint venture. She added that Romanian private defence companies like Aerostar for Mig-21 maintenance activities have sound relations with their Indian counterparts.

Once the agreement enters into force, both parties will oversee its execution through a Joint Committee on Defence Cooperation, which will convene periodically in Romania and India. "It

is important to underline that specific cooperation activities in the spheres outlined in the agreement shall be mutually determined by both Parties, according to their mutual interests and needs of cooperation," said Cojocaru.

As India plays a pivotal role in defending a rules-based international order and fundamental democratic values, this Defence Cooperation Agreement with Romania marks a significant step towards strengthening global stability and security.

First ever Space Cooperation

Both countries are already working closely in the space sector. Financial Express Online has reported earlier that the National Institute for Aerospace Research "Elie Carafoli" (INCAS) is the European nation's leading research establishment especially in aerospace sciences. This agency has a major player in the European Union's policy making for R&D.

In an earlier interaction with Financial Express Online Eng Claudia Dobre – Director of Business Development had talked about the agency's role in India's Gaganyaan programme and also other areas of cooperation with Indian Space Research Organisation.

https://www.financialexpress.com/business/defence-india-and-romania-ink-the-first-ever-defence-cooperation-agreement-focus-on-indo-pacific-and-more-3035442/

FINANCIAL EXPRESS
Read to Lead

Wed, 05 Apr 2023

India or China: Who has Better Small-arms Firepower?

By Manish Kumar Jha

India and China are modernising their militaries at an unprecedented scale. While the Chinese military has been displaying its large military platforms and systems, its world of small arms is shrouded in mystery, especially the new guns. India is also in the midst of replacing its clusters of vintage-category small arms with next-generation guns. India has a 3,488 km long Line of Actual Control (LAC) with China.

All three sectors– the eastern sector which spans Arunachal Pradesh and Sikkim, the middle sector in Uttarakhand and Himachal Pradesh, and the western sector in Ladakh—are marked for ground attack in most of the scenarios under the concept of "limited war".

Guns are the primary weapon for militaries. How are these armies building modern small arms and their firepower?

On the frontier, the Indian army carries weapons like the American Sig Sauer rifle, the Israeli Tavor assault rifle and the good-old AK-47.

While the Chinese army along the border with India, including Tibet, has been carrying the QBU-191 marksman rifle among other small arms.

Since its inception in 1927, China's People's Liberation Army (PLA) has always focused and shown its military prowess on its land forces and equipment.

Interestingly, Chinese gun manufacturers—mostly state wounded and operated—also try to keep it ambiguous with an alpha-numeric name or simply a "Type". On the surface, the military simply calls it a gun; even though any classification, or standards until it is ready for export or final display during the parade.

While both militaries have a fairly diverse range of small arms like pistols, carbines, light and medium machine guns, the focus here is on the strategic infantry rifle.

China's "Type 20" guns (since 2019)

The Chinese military's next-generation service is part of the QBZ-191 series of rifles. The PLA define it under the "Integrated Soldier Combat System". The QBZ -191 is uniquely chambered in the Chinese-patented 5.8×42mm calibre.

The rifle's designation "QBZ" comes from the Chinese words– light weapon (Qing Wuqi), rifle (Buqiang) and automatic (Zidong)". China recently renamed it Type 20 series. Why does the PLA call it Type 20? There is no clear answer except the new ubiquitous number "20" which cuts across its armed forces and includes the latest fighter jet J-20 and Z-20 helicopters in the arsenal.

Reports suggest Type 20 is the next-generation firearm for the Chinese military forces. The Type 20 series rifles are designed and manufactured by the Chongqing Jianshe Industry of the CSGC. While the CSGC claims it entirely has its own design, experts point out its similarity to the Heckler & Koch 416 rifle, which is used by the United States Marine Corps.

The Type 20 series is actually an improvement over the Type 95 series. In comparison with Type 95, it is much lighter. It does have the picatinny rails to be selectively installed through screw holes for a flashlight, laser module, foregrip, bipod and even laser-sub pod. The notable improvement is the variable zoom sniper scope called QMK-191 which could double up. However, its test result is not known in terms of its range and accuracy. Along, it has three variants Barrel length–14.5 in QMZ-191, 10.5 in carbine and 21.7 in Designated Marksman Rifle (DMR). A report suggests that the Type 20 series can fire up to 20,000 bullets with a ballistic performance at medium to long ranges.

The key feature in the latest QBZ series is the free-floating barrel which drastically reduces possible mechanical pressure distortions of the barrel alignment and vibration for uniformity in shot-by-shot.

With all its technical tools and tactical fringe integration which combine its firepower, its practical demonstration has been limited to the cosy confines of close-quarters combat simulators and augmented reality. The PLA has not tested its small arms in the conflict zones which is a must to acquire a firepower definition in the war scenario like the cult of AK-47 and HK-416.

Indian army's AK-203 (2023-24)

They are officially known in Russian as "Avtomat Kalashnikova". While the newly inducted AK-203 and AK-47 are different models with different specifications, it is based on the solid fundamental of the AK-47 rifle. AK-203 is also acknowledged as the most advanced version of the AK-47 rifle and is a fifth-generation assault rifle of the Kalashnikov series.

At 3.8 Kg, AK-203 is shorter in length and lighter than the 5.56mm INSA (Indian Small Arms System) assault rifle, the current standard issue for the Indian Army, which it will be replacing.

These rifles, an initial 70,000 of which are from Russia, are likely to start getting inducted into the Indian Armed forces by 2024.

The 7.62mm AK-203 is a versatile assault rifle. It is well integrated with its unique design of Picatinny rails which makes the AK203 extremely capable of mounting a whole range of tactical equipment. Advanced technical solutions improved fire accuracy and barrel lifespan considerably. In general, it does have provision for advanced sighting systems, telescopic sights, holographic sights, laser aimer devices etc.

The AK-203 has a sighting range of 800m and the magazine contains 30 rounds. The AK-203 has a length of 705mm with the stock folded. Its rate of fire of 600 rounds per min is highly efficient. AK-203 also features an integrated compensator and flash suppressor.

While the AK-203 takes lead in terms of its proven legacy on the battlefield, the only challenge remains in the time-bound delivery as the full-fledged production is yet to take off under the Indo-Russian joint venture at Korwa in Uttar Pradesh. In an interaction with Financial Express while addressing media ahead of the Army Day in Januray, the Army Chief General Manoj Pandey clarified the production timeline of the AK-203 assault rifle which was delayed, “Out of the 6 lakh plus AK -203 assault rifles, we will receive the 70,000 within 32 months, he said.

https://www.financialexpress.com/business/defence-india-or-china-who-has-better-small-arms-firepower-3034986/

THE ECONOMIC TIMES

Wed, 05 Apr 2023

SLINEX 2023: India, Sri Lanka gears up for Sea Phase from April 6-8 off Colombo

Participants from Indian Navy, Sri Lankan Navy and Sri Lankan Air Force on Wednesday concluded Pre Sail Conference to gear up for Sea Phase scheduled to commence from April 6-8 off Colombo.

"@indiannavy, @srilanka_navy and @airforcelk concluded the Pre Sail Conference to gear up for Sea Phase from 6-8 April off Colombo. Subject Matter Experts' training progressed on key evolutions at Sea," tweeted the High Commission of India in Colombo, Sri Lanka.

The exercise features two phases -- the Harbour Phase and the Sea Phase. The Harbour Phase is being organised in Colombo from April 3-5, followed by the Sea Phase from April 6-8, off the Sri Lanka capital.

Subject Matter Experts training progressed in areas of Helicopter operation, Underway Replenishment, Damage Control and Fire Fighting. Earlier, a reception hosted by the Indian High Commissioner, Gopal Baglay which was attended by the Speaker of the Parliament of Sri Lanka, Mahinda Yapa Abeywardena and Leader of the Opposition of Sri Lanka, Sajith Premadasa.

"Bridges of Friendship!!! SLINEX 2023-Day 2. The reception hosted by the High Commissioner on board was attended by Hon. Speaker @YapaMahinda, Hon.LOP @sajithpremadasa,

Hon.Ministers,MPs,Senior Defence Hierarchy including CDS and Service Chiefs,Diplomats and eminent dignitaries," tweeted the Indian High Commission.

Visitors thronged to the Indian ships -- INS Kiltan and INS Savitri -- that were open for public viewing.

SLINEX-2023 exercise is aimed at improving mutual understanding, enhancing interoperability, and exchanging best practices/procedures in multi-faceted maritime operations between both Navies. India and Sri Lanka have a long-standing bilateral relationship, particularly in the maritime domain. The cooperation between the two nations has been robust, covering various areas such as political engagement, economic and commercial ties, people-to-people connections, and cultural exchanges.

The bilateral naval exercise, SLINEX-2023, is a testament to the strong ties between the two countries. It aims to further enhance the cooperation between the two navies and reinforce the shared values and bonds of friendship and camaraderie.

Deputy High Commissioner of India to Sri Lanka Vinod Jacob took part in the opening of the exercise on April 3. He highlighted the importance of the exercise and its firsts - the first SLINEX held after the COVID-19 pandemic, the first after the Indian Navy changed its Ensign, and the first with the participation of Air Force and Special Forces.

The Indian Navy is represented by INS Kiltan, an Advanced Anti-Submarine Warfare Corvette, and INS Savitri, an Offshore Patrol Vessel. The Sri Lanka Navy is represented by SLNS Gajabahu, an Advance Offshore Patrol Vessel, and SLNS Sagara, an OPV.

Besides these vessels, the exercise will also feature Dornier Maritime Patrol Aircraft and Indian Navy Chetak helicopter, Sri Lanka Air Force Dornier, and BEL 412 helicopters. The special forces of the two navies will also participate in the exercise.

The SLINEX's previous edition was organized in Visakhapatnam from March 7-12 last year. This year's exercise is expected to further strengthen the bilateral ties and cooperation between the two navies.

https://economictimes.indiatimes.com/news/defence/slinex-2023-india-sri-lanka-gears-up-for-sea-phase-from-april-6-8-off-colombo/articleshow/99272138.cms

FINANCIAL EXPRESS
Read to Lead

Wed, 05 Apr 2023

Embraer's C390 Joins Select Group of Aircrafts Globally, Achieves Full Operational Capability

The C-390 Millennium which is in the race for Indian Air Force's Medium Transport Aircraft requirements has achieved Full Operational Capability (FOC). This certification has been issued by the Institute of Industrial Development and Coordination (IFI in Portuguese). This, according to the company, is the Brazilian body which is responsible for certifying aircraft which are to be deployed for military purposes.

What is FOC?

The FOC certification actually confirms that the project has met all the requirements which have been defined by Brazilian Air Force (FAB) and it is fit to carry out all missions for which it has been designed.

According to Bosco da Costa Junior, President and CEO of Embraer Defense and Security with this certification the C390 joins a select group of aircraft in the world as the aircraft has redefined the military airlift and refueling space. Adding, "Air forces around the world are focused on matching their ever-evolving operational needs with their budgets, seeking a platform that can perform multiple missions, recognizing that today's choice will affect their operational capabilities tomorrow."

About the Aircraft

This aircraft has been developed under the stringent operational requirements of the Brazilian Air Force. The genesis of the transport aircraft is in the triple helix model and is the culmination of industry, government and academia. As part of the certification and development process more than 3,500 hours have been flown on the prototype aircraft under different conditions and in addition to this around 85,000 hours have been clocked in laboratory test benches and devices.

Brazil's aerospace major Embraer has also started the delivery process in the FOC configuration of the sixth unit to the Air Force of Brazil and those aircraft which have been delivered earlier will have to be updated to have the certification. According to the company the aircraft which will be exported to other countries will all be FOC certified.

Financial Express Online has reported earlier that C-390 is considered to be the modern military tactical transport aircraft of the new generation. And with its multi-mission offers unrivaled mobility, combined with low operating costs, operating flexibility and high productivity.

This aircraft has the capability to carry 26 tons payload as compared to other medium-sized military cargo aircraft. Embraer's C390 can fly faster at a speed of 470 knots and farther. Is capable of performing a wide range of missions including dropping of cargo and troops, search and rescue, medical evaluation, humanitarian missions as well as operating on unpaved and temporary runways.This aircraft also can be used as a tanker for refueling as well as receiving fuel from another C390 using the pods which are under the wings, this making it the only aircraft in the segment in the world, according to the official company statement.

https://www.financialexpress.com/business/defence-embraers-c390-joins-select-group-of-aircrafts-globally-achieves-full-operational-capability-3035436/

THE ECONOMIC TIMES

Wed, 05 Apr 2023

US, South Korea Hold Air Drills Involving B-52H Strategic Bomber amid Tensions with Pyongyang

South Korea and the United States on Wednesday staged joint air drills involving at least one US nuclear-capable B-52H strategic bomber, Seoul's military said. North Korea views such exercises

as rehearsals for invasion, and has responded to other recent drills with a spate of increasingly provocative banned weapons tests.

In recent weeks it has tested what state media described as an underwater nuclear-capable drone, and carried out the launch of an intercontinental ballistic missile.

Officials in Seoul and Washington have warned since early 2022 that North Korea may conduct its seventh nuclear test, with some experts saying it could be imminent.

The United States and the South, meanwhile, have ramped up defence cooperation in light of the growing threats. "The continuous deployment of major US strategic assets on the Korean peninsula is considered an act to enhance the US determination to defend South Korea and the ability to implement extended deterrence," South Korea's defence ministry said in a statement.

The US B-52H was redeployed to the Korean peninsula on Wednesday about a month after its last deployment, the statement said. Wednesday's exercise also featured South Korea's advanced F-35A fighter jet, it added. The North has appeared especially sensitive to air drills in the past, with experts noting its air force is the weakest link in its military.

In March, leader Kim Jong Un ordered the North Korean military to intensify drills in preparation for a "real war", and he recently called for an "exponential" increase in weapons production, including of tactical nukes.

Washington has repeatedly restated its "ironclad" commitment to defending South Korea, including using the "full range of its military capabilities, including nuclear".

South Korea, for its part, is eager to reassure its increasingly nervous public about the US commitment to so-called extended deterrence, in which US military assets, including nuclear weapons, serve to discourage attacks on allies.

https://economictimes.indiatimes.com/news/defence/us-south-korea-hold-air-drills-involving-b-52h-strategic-bomber-amid-tensions-with-pyongyang/articleshow/99271838.cms

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New Method of Visual Detection of SARS-CoV-2 can Identify the Infection at Early Stage

A new sandwich based lateral flow immunoassay (LFIA) for the detection of Receptor Binding Domain (RBD) of severe acute respiratory syndrome-coronavirus-2(SARS-CoV-2) could

provide an efficient substitute for RT-PCR tests. It can detect that RBD antigen of the SARS-CoV-2 at an early stage of infection with a visual line of detection (LOD).

Popularly used gold standard techniques such as RT-PCR and ELISA are usually time-consuming, require skilled labor, specific equipment and are not feasible for on-site detection.

In order to overcome this challenge, a team of reserachers from DBT-National Institute of Animal Biotechnology (NIAB) and Gandhi Medical College developed a rapid and robust platform for early and on-field detection of SARS-CoV-2 virus. A smartphone app (Color grab) has been used for the qualitative analysis of the test strip. The developed LFIA working on the principle of antigen-antibody interaction holds the potential to be used for detection of SARS-CoV-2 without any requirement of skilled personnel and subsequently reduce the spread of the virus.

With support from Science and Engineering Research Board (SERB), an institution of the Department of Science and Technology (DST) the scientists came together to clone the gene responsible for RBD protein expression, and purify it to generate the antibody(Ab). The generated antibodies were then conjugated with monodisperse gold nanoparticles (AuNPs) to be used as a capture probe for colorimetric detection. The fabricated LFIA works in a sandwich format, where the RBD target analyte in the sample interacts with the gold nanoparticle conjugated RBD antibody to form a complex (AuNPs-Ab), which further moves along the nitrocellulose membrane and reacts with the RBD antibody coated as test line on the membrane to form a red colour band.

The RBD Ab and IgG secondary Ab were coated on the nitrocellulose membrane as test and control, respectively to test the presence of antigen (Ag) in the sample. Further, the excess antibody bonded with the control line coated with secondary IgG antibody validating the functionality of the test strip. An absorbent pad was placed at the end of the strip to prevent backflow across the strip.

The presence of band colour at test and control line indicates a positive result whereas a single line in control indicates a negative result. Depending on the target analyte, various parameters such as blocking buffer, antibody conjugation concentration, and antibody coating concentration on the membrane have been optimized to obtain band color with maximum binding efficiency. The band intensity of the test line was analysed using a simple smartphone-based application for image acquisition and analysis of the test line color, which can split any color data into its three primary color components -- red, green, and blue (RGB data). The specific color component shows the trend of increasing or decreasing intensity of color. This study was published in the Journal of Medical Virology recently.

The developed LFIA strips can be useful as a portable, point of care device (PoC) for on-site detection of SARS-CoV-2 particularly at home or even in rural areas. Moreover, the cost of LFIA strips is much less as compared to standard RT-PCR test making it a more economical option for people who cannot afford the RT-PCR test.

Publication link: https://pubmed.ncbi.nlm.nih.gov/36541714/

https://pib.gov.in/PressReleasePage.aspx?PRID=1913929

ThePrint

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Govt Approves Installation of 10 Nuclear Reactors

The central government has given bulk approval for the installation of 10 nuclear reactors, informed the Department of Atomic Energy on Wednesday.

In a statement in Lok Sabha, Union Minister of State for Atomic Energy and Space Jitendra Singh said the government has roped in Public Sector Undertakings (PSUs) for the installation of the nuclear reactors or the exercise would be done exclusively by the specialised government agencies.

The government has accorded administrative approval and financial sanction for 10 indigenous Pressurized Heavy Water Reactors of 700 MW each in fleet mode. The reactors will be installed in Kaiga in Karnataka, Chutka in Madhya Pradesh, Mahi Banswara in Rajasthan and Gorakhpur in Haryana.

The government has amended the Atomic Energy Act in 2015 to enable the Joint Ventures of NPCIL with Public Sector Enterprises to set up nuclear power projects.

These reactors are planned to be set up in 'fleet mode' progressively by the year 2031 at a cost of Rs 1,05,000 crore.

The minister further informed the Rajya Sabha that the US National Aeronautics and Space Administration (NASA) and the Indian Space Research Organisation (ISRO) have jointly manufactured an earth science satellite named NISAR (NASA-ISRO Synthetic Aperture Radar).

https://theprint.in/india/govt-approves-installation-of-10-nuclear-reactors/1499844/