



Mission in doubt
Fuel leak threatens first US
moon landing in 50 years
WORLD, PAGE 11

**2023 labeled
as warmest
year on record**
CHINA, PAGE 5

Farewell to legend
Soccer icon Beckenbauer
remembered SPORTS, PAGE 20



香港版
HONG KONG

CHINA DAILY

中國日報

WEDNESDAY, January 10, 2024

www.chinadailyhk.com HK \$10

Scientists eye space potatoes' growing potential in the field

Seeds' in-orbit exposure hoped to have induced mutations to enhance traits

By YUAN HUI in Hohhot and ZHAO RUIXUE

Scientists have begun the selection and cultivation process of over 60,000 potato seeds that spent five months in space, in the hope of discovering unique qualities that may improve efficiency and yield.

The seeds, delivered to the Shanguo Potato Technology Innovation Center in the Inner Mongolia autonomous region, were carried aboard the Shenzhou XVI space mission that returned to Earth on Oct 31.

"The cultivation process for these space potatoes will involve test stages in the laboratory, greenhouse and field," said Zhang Linhai, director of the Shanguo Potato Technology Innovation Center.

The region boasts an excellent potato-growing environment with high altitude, cold climate, few pests and diseases, and ample available land, said Zhang in an interview with China Daily on Tuesday.

The seeds will be germinated in a greenhouse under optimal conditions and then nurtured in pots until tubers develop. Subsequently, they will be transferred to the field for further evaluation of their various characteristics.

"About five percent of the plants will be selected for additional testing, focusing on factors such as yield and disease resistance," said Zhang.

Researchers will employ CRISPR, a precise gene-editing technology used to selectively modify the DNA of living organisms, to cultivate potato varieties with enhanced traits like



Potato seeds that were taken to space in 2022 are cultured at the potato innovation center in Shanguo, Inner Mongolia autonomous region. JIA PENG / FOR CHINA DAILY

high disease resistance and salt-toleration, said Zhang.

"The space environment has the potential to induce genetic mutations in plant seeds, leading to desirable traits such as early maturity, high quality, high yield and disease

resistance," Hu Baigeng, director of the National Engineering Research Center for Potato, said on Monday.

The center is based in Laoling, Shandong province, where the seeds were collected before being sent into space.

This breeding technique, known as space-induced mutation breeding or space mutagenesis, involves exposing seeds to strong cosmic rays, as well as other conditions such as vacuums, microgravity and low levels of geomagnetic interference.

China has been conducting space breeding experiments since 1987, sending the seeds of various plant species into space on retrievable satellites and Shenzhou spaceships. Space crops, including rice, wheat and tomatoes, have been successfully cultivated across the country.

Contact the writers at zhaoruixue@chinadaily.com.cn

X-ray telescope launched to learn more about black holes

By ZHAO LEI
zhaolei@chinadaily.com.cn

China launched a cutting-edge orbital telescope on Tuesday afternoon to try to capture traces of fleeting phenomena and give scientists more knowledge about black holes.

The Einstein Probe, a space-based X-ray telescope, was launched by a Long March 2C carrier rocket that lifted off at 3:03 pm from the Xichang Satellite Launch Centre in Southwest China's Sichuan province, and then placed in a low-Earth orbit.

It is the latest space science satellite developed by the Chinese Academy

of Sciences, following the Mozi quantum science satellite, the Wukong dark matter particle explorer, the Insight Hard X-ray Modulation Telescope and several other spacecraft.

The Chinese Academy of Sciences' National Astronomical Observatories said the Einstein Probe is dedicated to time-domain high-energy astrophysics and multi-messenger astronomy. The satellite has two payloads: the Wide-field X-ray Telescope and the Follow-up X-ray Telescope.

Its primary goals are to discover and characterize cosmic X-ray transients, particularly faint, distant and

rare X-ray transients, in large numbers; discover and characterize X-ray outbursts from otherwise normally dormant black holes; and search for X-ray sources associated with gravitational-wave events and precisely locate them.

The observatories said the mission will address some of the key questions in astrophysics and cosmology, such as the prevalence of massive black holes in the universe and how they formed and evolved, the astrophysical origins and underlying processes of gravitational wave events, and the progenitors and processes of supernovas.

The European Space Agency and

the Max Planck Institute for Extraterrestrial Physics in Germany have participated in the project.

The ESA provided support for the testing and calibrating of the detectors and optical elements of the Wide-field X-ray Telescope, and also helped develop and test the mirror assembly and electron diverter of the Follow-up X-ray Telescope.

Its ground stations will be used to help download data from the spacecraft throughout the mission, the European agency said.

The Max Planck Institute for Extraterrestrial Physics contributed some components and test facilities to the project.