

N0.578

CHINA SCIENCE AND TECHNOLOGY

NEWSLETTER

The Ministry of Science and Technology
People's Republic of China

N0.578

March 30, 2010

IN THIS ISSUE

- * Popular Health Action Launched
 - * S&T Minister Met with OCED Chief
 - * China-Brazil Innovation Meeting
 - * A Healthier Yangtze River
 - * New Fossilized Mononykus Found
 - * World First Hybrid Benne
 - * Keeping Red Cells for Longer Time
-

SPECIAL ISSUE

Popular Health Action Launched



An initiative to raise people's health awareness, co-sponsored by the Ministry of Science and Technology, China Association for Science and Technology, and Ministry of Health, was kicked off on March 16, 2010 at China S&T Museum. HAN Qide, Vice-Chairman of the National People's Congress Standing Committee and Chairman of China Association for Science and Technology, WAN Gang, Vice-Chairman of the Chinese People's Political Consultative Conference and Minister of Science and Technology, and YIN Li, Deputy Minister of Health made their respective opening remarks at the meeting. Some 400 participants, from Ministry of Science and Technology, China Association for Science and Technology, Ministry of Health, medical associations, research institutes, hospitals, community organizations, and popular science volunteer organizations, attended the launch event. A high level forum was held after the launch ceremony. WANG Longde, an academician of the Chinese Academy of Engineering and Chairman of China Preventive Medicine Association, Prof. WANG Chen, Head of Beijing Chaoyang Hospital, and Prof. LI Dakui, Deputy Director of China Pharmaceutical Association made enlightening speeches on health, clinical safety, rational use of drugs, and flu prevention and control.

INTERNATIONAL COOPERATION

S&T Minister Met with OCED Chief

WAN Gang, Chinese Minister of Science and Technology, met on March 23, 2010 with Angel Gurría, OECD Secretary-General in Beijing. WAN reviewed the fine partnership forged between China and OECD in the area of S&T policy. China has been an active part of OECD

S&T activities since the Chinese Ministry of Science and Technology (MOST) becoming an official member of OECD Committee for Scientific and Technological Policy. MOST has organized the translation of an array of OECD publications, sponsored China-OECD seminars, and worked on a range of joint research projects. WAN said that facing the global challenges and new situation, China is willing to further its exchanges and cooperation with other OECD members in the area of S&T and innovation policy.

Angel Gurría said S&T policy is an area where OECD has a substantive cooperation with China, with rich collaboration contents and laudable progresses. Gurria briefed the other side of OECD's Innovation Strategy and Green Growth Strategy, and welcomed China to be part of OECD forum and ministerial meeting in the area. 2011 marks the 10th anniversary of China becoming a member of OECD Committee for Scientific and Technological Policy, and the 60th anniversary of the founding of OECD. Both sides agreed to deepen exchanges and cooperation in the areas of mutual interest.

Both sides also exchanged views on China's innovation policies and strategies, supporting a roundtable meeting co-sponsored by China and OECD to discuss innovation strategy in May in Beijing.

China-Brazil Innovation Meeting



A China-Brazil S&T and innovation meeting was held on March 24, 2010 in Beijing. MA Linying, Deputy Director of MOST Department of International Cooperation, and Mr. Viana, Director of Department of Science and Technology, part of Brazilian Ministry of Foreign Affairs co-chaired the meeting. Some 20 participants from Chinese and Brazilian government and research institutes were present at the meeting. At the meeting, both sides thought highly of the S&T cooperation between the two countries since the signing of

an S&T and innovation cooperation accord between the two countries in 2009, which makes a role model for strengthening South-South cooperation. Both sides agreed to further deepen the collaborations in the areas of bioenergy, space technology, nanotechnology, and information technology, working together to address some global issues, including financial crisis, climate change, and food safety. Participants also made topic related exchanges during the meeting.

A Healthier Yangtze River

China Three Gorges Corporation inked on March 28, 2010 a five-year cooperation accord with WWF in Beijing. Both parties will work together to promote the sustainable development of hydroelectric industry, minimizing the adverse effects of hydroelectric projects on the ecological environment, and maintaining a healthy ecosystem for the Yangtze River Valley.

The two parties will collaborate in the following areas: 1) promote the sustainable management of the Three Gorge Project and other domestic and international hydroelectric projects, based on the green and low-impact hydroelectric standards and sustainable criteria; 2) strengthen the theoretical study of environment flow, improving the management of water resources in the Yangtze River Valley; 3) strengthen international exchanges and cooperation, enhancing public awareness of the ecological protection part of the Three Gorge Project; and 4) promote information sharing, capacity building, and environment education in the area of river protection, taking advantage of the opening of the Shanghai Expo and related seminars.

RESEARCH AND DEVELOPMENT

New Fossilized Mononykus Found



Reconstructed Mononykus Dinosaur.

It is reported from Institute of Vertebrate Paleontology and Paleoanthropology, part of the Chinese Academy of Sciences that an expedition team, jointly led by XU Xing, a research fellow at the Institute, and WANG Deyou, a researcher at Henan Institute of Land Resources, has found a new genus dinosaur under the Mononykus family over a site renowned for its rich gathering of fossilized dinosaur eggs. The finding, published in the recent issue of journal *Taxonomic Zoology*, is important for studying the evolution of the Mononykus family.

The new fossilized Mononykus, dated back to the middle part of the late Cretaceous Period, was unearthed at the Majiacun, Zhoujiagou, Xixia in Henan, representing an earliest Mononykus genus known to the world. The dinosaur, named Zhangshi Xixia Mononykus, exhibited the initial features of an advanced Mononykus genus. Scientists believe that it was a dinosaur with strong running capability, based on the analysis of its spine ridges and rear limbs. They also believe that it could be an ant-eating animal, based on the assumption that its super running capability was developed to shuttle from one ant den to the other.

World First Hybrid Benne

A team, headed by DANG Zhanhai at Institute of Economic Crops, part of Gansu Provincial Academy of Agricultural Sciences, has bred out the first hybrid benne species, named Longyaza 1 and Longyaza 2, in the world.. Not long ago, the two new species, with a per mu yield up to 260 kg and an oil content up to 40% or more, have passed the approval check at the provincial level.

DANG and coworkers have since 1998 worked on the male infertile materials sensitive to temperature using antibiotics, and created a new approach for breeding benne hybrids. Thanks to 10-odd year efforts, researchers eventually bred out two hybrid species enjoying the combined strength of genetic features, adaptability to environment, and matching. The development marks a breakthrough in the area, providing a powerful technical support for raising the yield and quality of benne species.

Pollen Development Mechanism Found

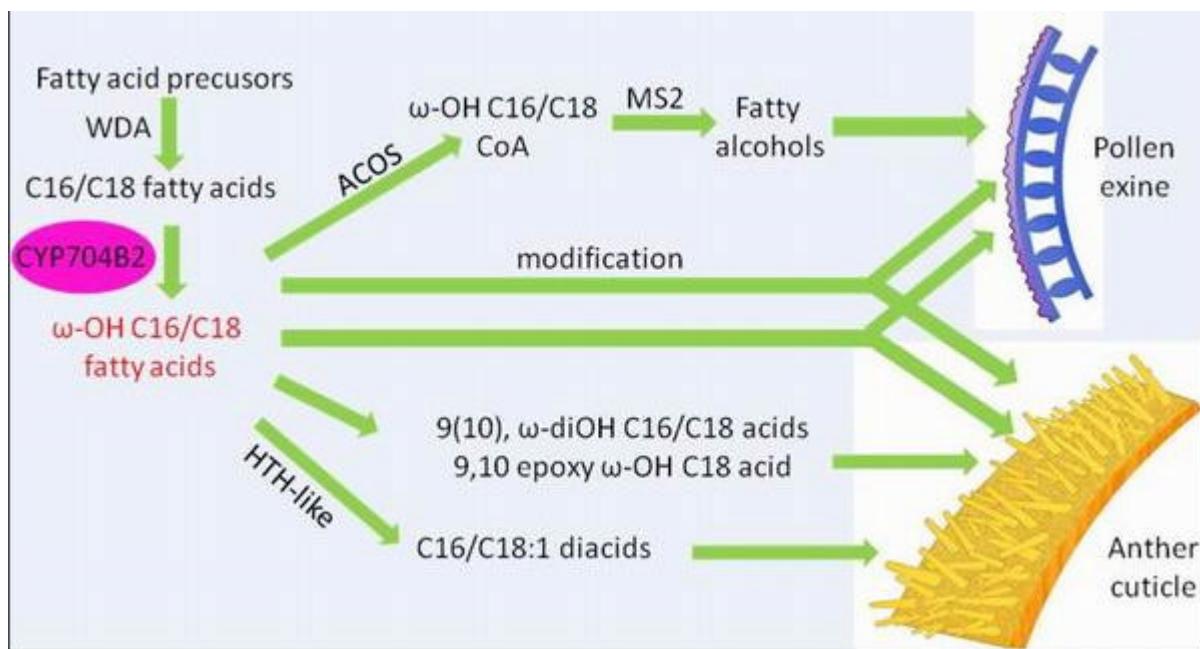


Fig. 1 CYP704B2 and its role in cuticle and exine formation and development.

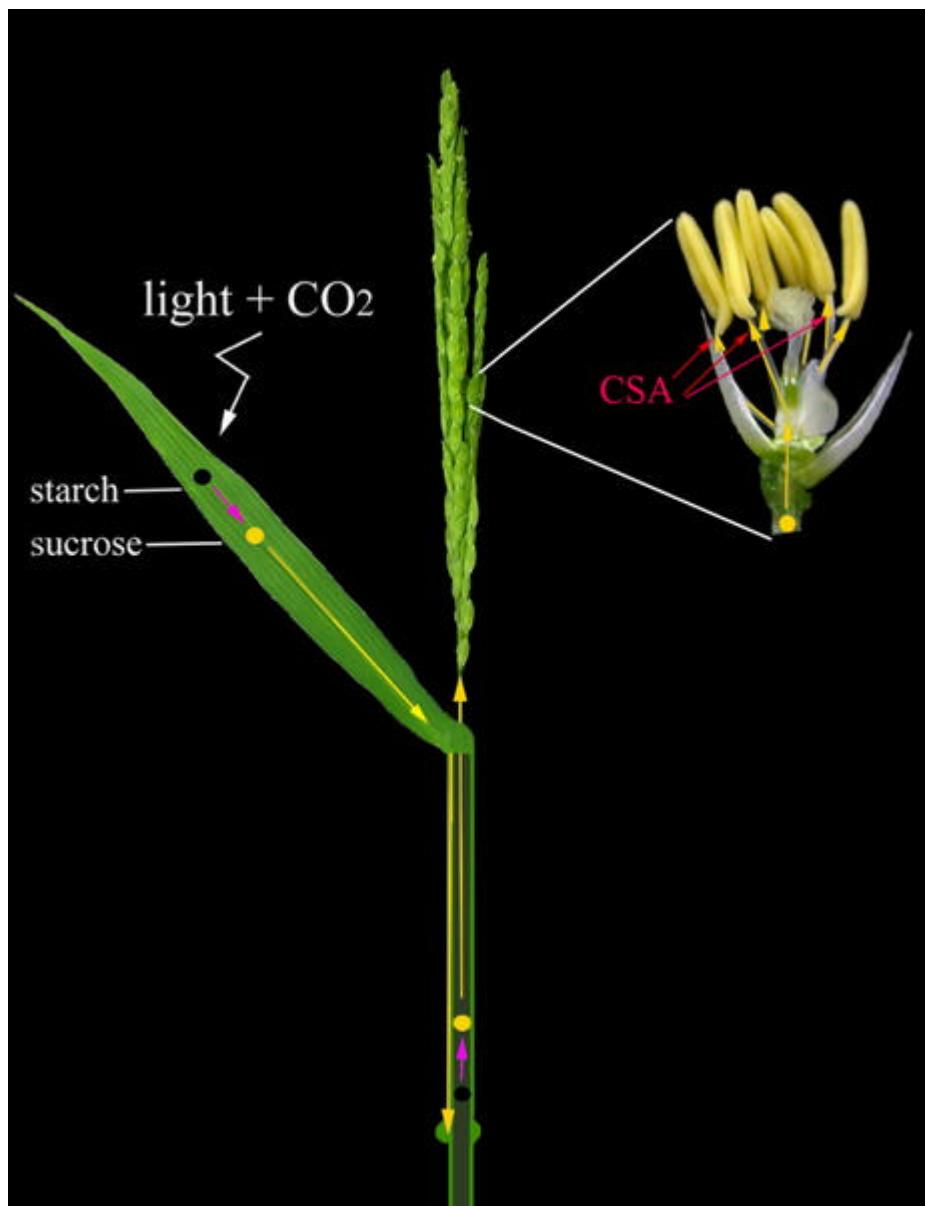


Fig. 2 CSA regulating the rotation of sugar in the development.

A study team, led by ZHANG Dabing, published three papers in the *Plant Cell* in 2010, introducing a number of key DNAs that contribute to the development and formation of pollens and associated regulating mechanism, which has produced an international influence.

ZHANG and coworkers unveiled the key DNA CYP704B2 that regulates the growth of cuticle and the formation of exine, the external wall of pollen, using genetic, biochemical, and cell biological means, and proposed that the synthesis of cuticle and pollenin may take the same biochemical process (Fig. 1)

Zhang also isolated and characterized a rice mutant, carbon starved anther (CSA), that showed increased sugar contents in leaves and stems, and reduced levels of sugars and starch in floral organs (Fig. 2). The finding provides an important evidence for

understanding the distribution of sugar within the plant.

In 2006, Zhang and coworkers separated and characterized a key factor that regulates the programmed cell death, or Tapetum Degeneration Retardation (TDR). Not long ago, working with Dr. Wilson's Lab at University of Nottingham, ZHANG confirmed that AMS is able to regulate the expression of multiple genes through DNA chips, chromatin immunoprecipitation (ChIP), and genetic analysis. They sorted out 13 DNAs that are directly regulated by AMS. These genes are part of major biological processes, including fat transport, fatty acid synthesis and metabolism, methylation decoration, and pectin synthesis. In addition, they found 2 interactive proteins associated with AMS at the protein level, in a hybrid experiment, which in turn unveiled the role played by AMS in anther and sporule development, creating a ground for improving the understanding of biological process of pollen development.

Keeping Red Cells for Longer Time

A key project to develop nano magnetic particles to test human blood, under an innovation fund established for small and medium-sized tech businesses, has landed theoretical, technological, and technical breakthroughs, helping find a solution to addressing a long standing puzzle that red blood cells cannot be stored for a long time. It also ended up the past practice that blood test can only be done half in China. The new test technique passed experts' approval on March 24, 2010.

According to LI Yong, head of the project and director of Changchun Institute of Biological Products, the newly developed test technique and associated agents has made a perfect combination of today's nano magnetic particle technology and immunology. Researchers applied red blood cells to the surface of immune magnetic particles for regular clinical tests. The technique produces the red blood cell magnetic particles in even size. Centrifugation free, the test runs quickly with a fine biological compatibility, and without toxicant effects. Reduced costs make it a standardized agent possible. In the past, one could not purify some antigens in red blood cells, and antigens would disappear when hemolytic. The new technique is able to keep antigens, especially some rare antigens, without purifying the antigens in red blood cells.

The new process has been conferred with an international patent grant, and the new test kit has won the approval of State Food and Drug Administration for registration. The kit is able to perform multiple tests on a blood specimen in an automatic and standardized manner. The agent, both cold and dry, facilitates storage and shipping.

Fat-to-Sugar DNA Cloned

Prof. ZHENG Bingsong at Zhejiang Forestry University have studied plant gene cloning and

associated functions in Sweden and France since 2004. He found in an *Arabidopsis thaliana* seeds study that the seeds would turn fat into sugar to keep its breath and growth at the development stage. He also found the similar phenomenon in other oil producing plants. Eventually Prof. ZHENG cloned the DNA that contributes to the function from *Arabidopsis thaliana*. According to ZHENG, The cloned DNA is able to get out the fat inside the seeds and turn it into sugar, which can be consumed in human breathing, and reach the goal of losing weight.

ZHENG has applied the cloned DNA in rats and rabbits, in an attempt to make them loss weight. He is also working on a drug synthesized with the cloned DNA. Hopefully, the new drug will help overweight people to shed some weight.

NEWS BRIEF

First TD School in China

Not long ago, China Mobile (Tianjin) and Tianjin University inked a strategic cooperation accord to build the first TD school in the country. According to the accord, the mobile vendor and Tianjin University will built a TD school in a wireless city, the first of its kind in the country. A TD innovation and application center will be established for the purpose. The enhanced application of mobile telecommunication technology across the campus will allow Tianjin University to turn itself into an experimental center for cutting edge TD technology, including novel 3G online platform, and providing samples for user and market related studies.

According to a briefing, a TD school is made up of an infrastructure network, an intelligent TD school platform, and a TD school Internet of things. Phase one project is supposed to work on six major targets, including a TD innovation and application center, palm campus, and an integrated campus communication network.

YAN Wusi, Vice President of China Mobile (Tianjin) said the new strategic partnership will facilitate the development of information technology in Tianjin, allowing a more effective partnership between industry, universities and research institutes, and creating an advanced platform for campus management and social activities.

Comments or inquiries on editorial matters or Newsletter content should be directed to:

Department of International Cooperation, MOST 15B, Fuxing Road , Beijing 100862,
PR China E-mail: hzs_dyzdc@most.cn Fax: (8610) 58881364

<http://www.most.gov.cn>