

## News in Brief

## Key to Firm

## Tomatoes Unlocked

Dutch scientists said they have identified a key gene that protects tomatoes against a common fungus that causes the plants to wilt.

The fungus *Fusarium oxysporum* can make a compound that overcomes two of three genes in tomatoes that help ward off disease, Reuters wrote.

But a third tomato gene targets the protein and keeps tomatoes firm, said Petra Houterman, a molecular biologist at the University of Amsterdam who worked on the study. She said her team's report provides insight on how certain types of fungus do their damage and could lead to more robust varieties of tomato and other crops.

"It leads to a better understanding of how resistance works," Houterman said. One of the first questions for the Dutch researchers was why the fungus infected one tomato plant but not another.

To answer this, they studied the xylem vessels that carry nutrients throughout a plant, and where the fungus makes its home. They found that a protein called Avr1 helps the fungus overcome two of three of the plant's resistance genes, Houterman said.

## Platypus Genome Decoded

Australia's unique duck-billed platypus—an egg-laying, furry animal with web feet that spends most of its time underwater—is in fact part bird, part reptile and part mammal according to its gene map.

A team of international scientists released the platypus genome, saying its complex sequence would aid the study of human evolution—particularly the development of the immune, nervous and reproductive systems, Reuters reported.

"It's probably the most eagerly awaited genome since the chimp genome because platypuses are so weird," said Jenny Graves, head of the Comparative Genomics Group at the Australian National University.

"Comparing us with the platypus means that we can say something about our common ancestor, which was one of the earliest mammals, so that means that we can ask questions about what happened to make us mammals," said Graves, after a briefing on the platypus genome, published in the journal *Nature*.

## Bubbles Key to Healthier Diet

Bubbles could be the answer to encouraging more children to eat sandwiches made out of healthier brown bread, claims a chemical engineer.

"Bread is special because of its bubbles," says Dr. Grant Campbell of the University of Manchester, Telegraph reported.

"It's got these bubbles because wheat, when mixed with water, salt and yeast is the only cereal that can trap the carbon dioxide and give us raised bread."

White bread contains a range of vitamins and minerals, but it has less fiber than wholegrain, wholemeal or brown bread, according to the Food Standards Agency.

But Dr. Campbell adds that there is a basic problem encouraging people to eat more when it comes to the texture of brown bread.

"Brown or wholemeal bread is less suitable for making tasty sandwiches—the bran pops the bubbles. Nutritionists have been telling us to eat more wholemeal bread for decades but we still prefer white bread because it tastes better."

## Flowers Wave at Passing Insects

Flowers 'wave' at insects to get their attention, scientists have discovered. The finding helps explain why many flowers waft in the breeze, and reveals a hitherto unknown trick used to attract pollinators, BBC said.

Scientists made the discovery while studying common wildflowers known as sea campion on the Welsh coast. Mobile flowers are visited more often by insects and also produce more seeds, they said.

Moving flowers also attract a wider variety of insect species than more static blooms.

For years, biologists have known that flowers use striking colors, fragrances, elaborately shaped petals and nectar to attract pollinating insects such as bees and flies.

John Warren from the University of Aberystwyth looked at what research had previously been done, and found very few answers. "The only reference I found to motion in attracting pollinators says it's unlikely to be important, because insects are not good at detecting movement; which is clearly rubbish." Their experiments reveal that flowers mounted on long, thin stalks move around more in the wind.

This acts as a powerful signal to passing pollinators, allowing the plant to attract more insects than less mobile flowers growing atop short, thick stems.

## Tiny Blood Pumps For Failing Hearts

For a patient with end-stage heart failure, an implantable pump that helps circulate the blood can mean added months or even years of life.

According to Technologyreview, now CircuLite is developing an implantable pump that weighs just one-sixth as much as its smallest predecessor.

About the size of a AA battery, it could ultimately be implanted through a catheterization procedure that is far less invasive than the operations used to place today's pumps.

It could thus be used to treat patients in earlier stages of heart failure, for whom implantation surgery had previously been too risky.

Invented more than two decades ago, the earliest support pumps—or ventricular assist devices (VADs)—kept patients tethered to a large external console and a blood-thinning machine. A second generation of VADs, still widely in use, has spinning rotors that continuously draw in blood.

Third-generation devices are much smaller, using magnetic or hydrostatic forces to float the rotor within the blood. That eliminates friction between the pump's parts, which in earlier generations led to breakdowns and blood clots.

## Iran Acquires Precious Metal Recovery Technology

Head of Catalysts Research Center, affiliated to oil industry, has announced the indigenization of technical know-how for the recovery of precious metals from catalysts.

Speaking to MNA, Mehdi Rashidzadeh added, "Our researchers have acquired the technical knowledge for extracting precious metals such as rhodium and platinum from catalysts. A number of catalysts used in the oil industry contain precious metals and until now we had to seek assistance from foreigners for extracting the metals."

He noted, "In line with the policy of developing specialized software, we managed to produce and install simulation software at Tehran Refinery Reforming Unit. The software, which is cheaper than those in foreign countries, can optimize the performance of refineries."

Rashidzadeh recalled that the high price of equipment needed for producing catalysts is the most important obstacle to promoting this technology in the industrial sector.

"Private sector cannot undertake the job alone and it needs the support of the government," he added.

## Spinach Helps Build Muscles

Popeye the cartoon sailor may have been right to claim that spinach builds muscles.

It has long been known to be rich in nutrients such as calcium and iron, but its ability to increase strength has never been proven.

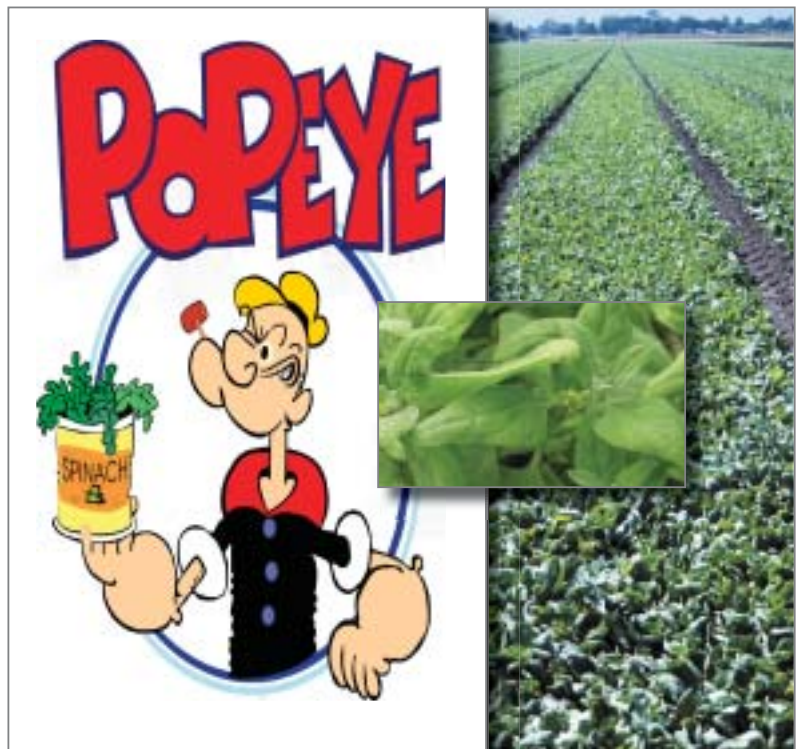
Now, scientists have shown that, in laboratory tests, chemicals in spinach do help to build muscles, speeding up the body's conversion of protein into muscle mass, Telegraph said.

Unfortunately for those looking to increase their muscle mass, the team estimates that humans would have to eat more than 2.2lb (one kilogram) of spinach every day.

Researchers led by Ilya Raskin, from Rutgers University, New Jersey, tested the effect of the extracted chemicals, phytoecdysteroids.

When placed on samples of human muscle in a lab, they sped growth by up to 20 percent.

Rats injected with the extract for a month were also stronger and had increased grip



Chemicals in spinach do help to build muscles, speeding up the body's conversion of protein into muscle mass.

strength, the study, highlighted by New Scientist, shows. High in vitamins

C, A and K, previous research has suggested that spinach could help peo-

ple battling weight problems to stay slim, by slowing the digestion of fat

and fooling the body into feeling fuller for longer. Studies have also

shown that spinach can help to boost brainpower by keeping the mind alert.

New Gas Sensors Monitor CO<sub>2</sub> Levels

A novel gas sensor system makes it possible to monitor large areas cost-effectively the first time. The patented gas sensor is based on the principle of diffusion, according to which certain gases pass through a membrane faster than others.

Using a tube-like sensor it is possible to measure an average gas concentration value over a certain distance without influencing or distorting conditions in the measuring environment, ScienceDaily wrote.

If such sensors are laid in a particular pattern, it is possible to calculate the concentration of a gas over an area. The measuring tube

can therefore replace a large number of individual sensors, making it much cheaper than previous methods. The sensor was developed at the Helmholtz Center for Environmental Research (UFZ).

Potential fields of application for the membrane-based gas sensors are environmental remediation and landfill monitoring. But in future the technology could also be used to monitor the underground injection of carbon dioxide, gas pipelines or sewers. The principle can also be used in liquids, so the probe is also useful for monitoring waterbodies (e.g. for observation of hydrogen sulphide formation), including groundwater, and for monitoring boreholes.