SCIENCE

Waste power: A GROUP of US scientists, who developed a microscopic fuel cell to simultaneously clean wastewater and produce electricity, have now altered the cell to produce almost four times as much hydrogen directly out of biomass than can be generated through fermentation. This hydrogen can be used as 'clean' fuel. And in the new process, when the bacteria will dissolved biomass, for example, wastewater, they transfer electrons to an anode, the positive terminal of a cell. Bacteria also release protons, hydrogen atoms that are without their electrons into the solution. The electrons on the anode migrate via a wire to the cathode, the other electrode in the cell below where they are electrochemically assisted to combine with the protons and produce hydrogen gas. This requires connecting the positive terminal of a power supply that provides at least 0.25 volts to the anode and the negative pole to the cathode. Hydrogen produced by biological fermentation is at present limited by the 'production barrier', a fact that biotechnologists, since a 'power boost', can only convert carbohydrates into a limited amount of hydrogen and dead end products such as acetic acid. The new method has appeared in a paper by Bruce Logan and his fellow researchers at Pennsylvania State University in the US. It is already online and scheduled for a future issue of Environmental Science and Technology. Just blast it! SCIENTISTS have recently mapped the genome of the fungus, the least fungal pest of rice. This pest, say scientists, could affect 50 million people in Asia—tens of thousands of tons of grain every year. Unlike most fungi, Magnaporthe grisea produces spores that can be transplanted through air. During their 'rest', a special adhesive enables them to stick before they eventually fall. And when spores germinate, a pressure cell called appressorium, a dome-shaped structure, is formed. Which is precisely the reason why Magnaporthe grisea finds an easy access to plants. Normally it is in the 'sleeping stage' that the infected rice cells. But in case of the older plants, the impact of the 'rice blast' is much bigger and the loss of grains is enormous. Recently, a group of scientists at North Carolina State University studied and mapped its genome, and their findings have been published in Nature. They also studied the fast pathogenic fungus that is capable of causing disease in plants and found 11,120 genes. They say a closer look at the genome may help identify the proteins that this killing fungus produces could well be the target of a new fungicide. The chemical substance that destroys inhibits the growth of fungi. But these pesticides are much cheaper than using water. But following the mapping of the rice genome, scientists hope to develop a new variety of resistant Health pyramid. A Food pyramid devised and designed by a research group in the USA will ensure a more effective 'system of nutritious intake' that will also act as 'hope healing effect'. They say we all must know how for ourselves for when we choose what we will eat. The process that goes into choosing the 'healing foods' in this 'pyramidal system is very critical because each one of us contributes to our own health.' I explain Monica Myklebust and Jenna Wanner of Michigan Integrative Medicine Clinical Services University. Water, fruits, vegetables and grains play the chief roles to ensure that the foundation of this food pyramid is solid. The other 'pyramidal items' are legumes, a great source of non-animal protein, eggs that contain high-quality protein, vitamin and minerals and dairy products that are low in fat but rich in calcium. Lean meat complement other. Fish with omega-3 fatty acids is also fine. The seasonings (jukkas or herbs like onions, garlic, pepper, salt) not only add to flavour to what you eat, but they also help you get some great healing benefits. The choice of what food will be on top of this pyramid is your choice. Go down to Earth Feature Service.