

**THE DISCOVERY OF KANNURIN**

A new antifungal has been discovered by the scientists from Kerala. It has been named Kannurin, since it was discovered in Kannur. Kannurin is a lipopeptide derived from the common soil saprophyte, *Bacillus cereus*. The other important lipopeptides derived from *Bacillus cereus* are polymyxins. Shreejit and Ajesh chemically characterized Kannurin using electrospray ionization mass spectra and infrared spectroscopy. It is a cyclic heteropeptide and has strong antifungal properties against *Cryptococcus* and *Candida*. It was also found to be active in biofilms which can be used topically. This major breakthrough was published in the *Journal of Applied Microbiology* in August and will have significant pharmaceutical and biotechnology applications (*The Hindu* 5 September 2013, *J Appl Microbiol* 12 August 2013).

**DEATH OF A DOCTOR**

When Narendra Dhabolkar was brutally shot dead by gunmen on 20 August, he managed to achieve what he had been struggling for, over the last 18 years. He started his career as a doctor. But after 12 years of practice he realized his calling was social activism. He was Maharashtra's most vocal rationalist. His state wide movement targeted god-men and superstitious practices. In recent years he had been constantly working towards getting an anti-superstition Bill passed by the Maharashtra Assembly without much success. The Bill's main goal was to protect common people from exploitation by quacks and conmen and eradicate gruesome practices like human sacrifice, sexual misdemeanors and magical remedies. The Bill had been written and rewritten several times to accommodate suggestions and objections of various political and social institutions. Why it was opposed with such fervor is inexplicable, when it clearly does not even hint at curbing personal faith, personal beliefs or even personal superstitions. Four days after his death, the anti-black magic and superstition ordinance was passed in Maharashtra (*The Hindu* 21 August 2013).

**FREEDOM ONLINE**

Advocates for free online access will be glad to know that nearly 50% of articles published in 2011 are now accessible free online. The data is based on a study conducted for the European Union. Stevan Harnad, an open-access campaigner and cognitive scientist at the University of Quebec in Montreal was asked to check a random sample of 20,000 papers published in 2008 (from the Scopus database of papers run by Elsevier).

Yassine Gargouri, a computer scientist at the same university designed a computer program to find free articles. They found that 32% of the papers downloaded in December 2012 were free. But when the group checked 500 of these papers manually using Google and other search engines and repositories, the figure increased to 48%. They then applied their own automated software, or 'harvester', to 320,000 papers downloaded from 2004 to 2011, searching publishers' websites, institutional archives, repositories such as arXiv, PubMed Central and academic networking site ResearchGate and the search engine CiteSeer<sup>X</sup>. An average of 43% of articles was free. The share of papers published in open access journals has risen from 4% in 2004 to 12% by 2011. But manuscripts made free by other means have also increased. For example many are free a year after publication and researchers themselves archive articles online on repositories and personal websites. The number also varies between countries, with Brazil topping the charts at above 40% and the number in the US remaining below 10%. The proportion of free online papers is likely to increase in the next few years. From 2014, the results of all research funded by the European Union will be open access. And in February, the US White House announced that government-funded research should be made free to read within 12 months of publication (*Nature News*, 20 August 2013).

**FRUGAL SCIENCE**

Frugal science is an idea whose time has come. Groups are morphing ordinary bicycle pumps to make nebulizers and pressure cookers to make autoclaves. Solarclave is a solar operated device to sterilize surgical equipment. It is easily transportable to remote clinics and is simple for one healthcare worker to set up. Adher.IO is another award winning behavioral diagnostics platform. It relies on a combination of chemical diagnostic technology, wireless communication technology, and economic incentives to encourage patients to stay on their tuberculosis medication. Patients are given sets of test strips that they use every day to prove that they have taken their medication. If proper ingestion is present in their system, a secret numeric code appears. The patient sends his proof code via an SMS to a central processing database that tracks the patient's compliance rates. For each week that the patient succeeds in taking his or her medication, they receive a reward in the form of cell phone minutes (*New Scientist* 4 September 2014).

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