

Invention to detect fake currency gets US patent

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THIRUVANANTHAPURAM: How often does one check fake currency? Rarely, though there is a 400 per cent increase in counterfeit currency circulation in the country according to the national financial intelligence unit. Now to prevent that, Kerala born outstanding scientist of CSIR's National Institute of Interdisciplinary Science and Technology (NIIST) Dr Ayyappanpillai Ajayaghosh has devised a novel scientific solution.

Ajayaghosh has invented a fluorescent material to easily identify counterfeit currency. He has applied for patent to the US and the patent office has cleared the first hurdle by approving its publication. "The molecules developed have the potential to detect fake currency and show properties of sensors to detect diseases," NIIST director Dr.Suresh Das told TOI on Thursday.

"Circulation of fake currency is a threat to the country's security and economy. Present invention provides a novel fluorescent molecule which exhibits emission colour change when in contact with moisture or water and it can be used to prevent fake currency and for security labelling," Ajayaghosh told TOI.

"On normal paper currency, when coated with this fluorescent chemical molecule, it results in blue emitting surfaces on which writing is possible using water as ink. On moistening, blue colour turns to green and images undergo self-erasal after six hours and the colour turns back to blue if it's original," Ajayaghosh said. If its fake currency, there will be no change in colour," he said.

"Possibility of using these fluorescent molecules to create Test Scrip's and cheap diagnostic kits to detect cancer and other diseases are being explored. It is a dream project and discussion is on with doctors at the Regional Cancer Centre here," he said. A patient suffering from cancer or other diseases will be prone to severe metabolic changes resulting in exhalation of 45 per cent high chemicals which may be obnoxious. The patient can be asked to directly blow through a pipe, after placing the test scrip at the vent to detect the disease. Studies are on for that, Ajayaghosh said.

"For four of his previous inventions, Ajayaghosh has already received the US patent. The publication by the US patent office for the invention of fluorescent molecule now is an indication that the US patent is expected soon," said Praveen Raj, a scientist at NIIST. His four previous inventions that received US patent include, White light emitting organogel which has potential applications in full color displays with color filters and in various lighting applications, Process of selective detection of cyanide anions which can be applied to detect cyanide content since many plants and fruits are known to contain cyanides, Pyrrole end-capped bipyridine assay powder for selective detection of zinc ions as variation in zinc concentration is reported to be responsible for neurological disorders such as Alzheimer's, Parkinson's disease and Epilepsy, then Nanocomposite material useful for the preparation super hydrophobic coating which has potential application over aircraft surfaces, especially the wings, satellite-warps and such constructs as barrier layers for

transporting water through canals and water pipes and micro fluid devices.