BHU scientists develop prefilled dual-chamber syringe

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VARANASI: A team of scientists at the Indian Institute of Technology-Banaras Hindu University (IIT-BHU) has invented a dual-chamber prefilled syringe, inspired by traditional syringes, by using 3D printing and biocompatible material.

The syringe has two compartments that can store frozen dried powder and diluent (liquid) separately. Process for approval for its use on human beings is underway.

Assistant professor at Tissue Engineering and Biomicrofluidics (TEBM) Laboratory, School of Biomedical Engineering, Dr Sanjeev Mahto, who led the team of scientists, said: "There are various drugs that are administered through parenteral (other than oral) route through syringes. This is sometimes preferred due to gastrointestinal intolerance and other side-effects. Such drugs are generally kept in separate vials in liquid form and freeze-dried powder.""When the patient needs medication, these two components are mixed and administered through injection. In many areas, less skilled professionals are prone to making some mistakes during handling. In addition, high cost of storage, compulsive use within the given time, packaging and distribution of vials make these drugs expensive. Our dual-chamber syringe will be helpful in overcoming such limitations," Prof Mahato said.

He added one of the chambers stored the diluent and the other had freeze-dried powder. "The two chambers inside the syringe can be pierced with the help of a stick provided inside the plunger. This results in mixing of the powder and the liquid. After this, it is ready to be administered," he said, adding that he had filed for patent for the healthcare innovation.

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