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IIT-I researchers create med compounds using eco-friendly method

Indore: Researchers at IIT Indore developed a safe and eco-friendly method to create nitrogen-based chemical compounds—heterocycles—that are widely used in medicines. These compounds are key components in drugs used to treat conditions like allergies, cancer, depression, and more, an official release said.

EUREKA MOMENT

Traditionally, making these compounds involved harsh processes, including high temperatures and large quantities of expensive or harmful chemicals. Now, using visible light, particularly blue light, scientists found a simpler, safer, and energy-saving way to produce these molecules at room temperature, it added.

"This work is a fine example of how fundamental science can lead to sustainable technological advances. At IIT Indore, we are committed to encouraging research that combines innovation with environmental responsibility," said Prof Suhas Joshi, director, IIT Indore. This new approach offers exciting possibilities for designing and developing compounds with important medicinal uses. Dr Umesh A. Kshirsagar, the principal investigator of the project, added, "Our goal was to develop a process that is not only efficient but also green. By using visible light under simple conditions, we developed a pathway to synthesise important medicinal compounds with less environmental impact and greater affordability." This innovative method is not only cost-effective and efficient but also represents a greener and cleaner direction for chemistry. It holds great promise for advancing both healthcare and environmental sustainability. The process works under mild conditions, using a homemade photoredox setup developed in the lab. Researchers checked light's wavelength with a photospectrometer to ensure it was in required range and included a cooling fan to maintain room temperature. This method produced high-quality results with various chemical groups and showed good to excellent yields.