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Nagaland University converts invasive plant into tool for drugs, antibacterial & cancer research

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Study demonstrates how a common invasive weed can power fast, eco-friendly pharmaceutical synthesis



Researchers from Nagaland University and Fazl Ali College, Mokokchung, have transformed one of the State's most problematic invasive weeds into a powerful tool for next-generation healthcare and sustainable manufacturing, unlocking major end-use applications in pharmaceuticals, medicine and green industry.

The research team has developed an eco-friendly method to convert the invasive plant *Mikania micrantha* into silver nanoparticles that can efficiently accelerate drug production, combat harmful bacteria, and show promising anticancer activity, all without relying on toxic chemicals conventionally used in nanomaterial synthesis.

The researchers adopted a "green chemistry" approach that replaces hazardous industrial processes with plant-based science. Using leaf extracts, the team created highly stable silver nanoparticles that act as ultra-fast catalysts that can produce essential drug components known as 'Imidazoles' in 30 to 180 seconds. These compounds are foundational to a wide range of medicines used across therapeutic areas.

The Research was supported by Anusandhan National Research Foundation (ANRF) and the National Fellowship for Scheduled Tribe Students (NFSTMOTA).

The study's most immediate impact lies in pharmaceutical manufacturing. The nanoparticles function as reusable catalytic engines, enabling faster, cleaner, and more cost-effective production of key drug ingredients. Unlike conventional methods that depend on expensive and toxic reagents, this approach offers a scalable and sustainable alternative for industry.