



Micro plastics

Microplastics are essentially small pieces of plastic that are smaller than five millimetres. Although small, they can be really harmful to living beings.

They come from various sources such as debris from larger plastic waste, or the shedding of synthetic materials.

When they enter into the body, they can cause increased risk of heart problems, gut inflammation, and even organ damage.

WORLD ENVIRONMENT DAY

SEEDS OF CHANGE

Three teenagers from Rajasthan have developed a simple but effective solution to tackle one of the major environmental and health problems facing the world today.

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What is the Earth Prize?

The Earth Prize is the world's largest sustainability competition for students around the world aged 13–19. It is run by the Earth Foundation based in Geneva, Switzerland, and recognises and awards students who develop the best solutions towards environmental sustainability.



PHOTO: REUTERS

Team Plas-Stick (from left to right): Avyana Mehta, Vivaan Chhawchharia, Ariana Agarwal



Microplastics have become a major environmental problem that is currently threatening our ecosystems and health. When plastic waste breaks down over time, they become tiny particles which are less than 5mm in length – a.k.a., microplastics. While this is an emerging area of study, we already know that our water sources, agricultural fields, and even fish are polluted by microplastics.

In 2025, a study commissioned by the Delhi government found the presence of microplastics in groundwater samples collected from 11 of its 13 districts. But, how do we deal with a problem that we cannot see? Three teenagers from Rajasthan decided to find a solution to this crisis, and their innovation has bagged The Earth Prize 2026 for the Asia region.

Avyana Mehta, Vivaan Chhawchharia and Ariana Agarwal are students of Jayshree Periwai International School, Rajasthan. Their innovation, called Plas-Stick, is now becoming popular among environmental enthusiasts. In a chat with The Hindu Teen Digest, the trio speaks about their innovation and motivation.

The solution

Plas-Stick is a biodegradable powder made of tamarind seeds. When dissolved in water and stirred for a few minutes, it causes the microplastics to clump. They

can then be removed with a handheld magnet. “This process can retrieve about 90% of microplastics from a given sample of water,” says Ariana. “Thus retrieved scrap can be recycled to make coasters and such other products!”

The beginning

The trio has been researching microplastics for quite some time now. “The three of us happened to visit a rural government school for a project there around 2025,” says Vivaan. “We saw the water containers being used and realised that the students there do not have access to properly filtered water.” Avyana adds, “This is what prompted us to take action.”

UNICEF estimates that India loses \$600 million every year due to waterborne diseases. Its studies also show that nearly two-thirds of our country's districts are affected by extreme water depletion. The microplastic contamination is a new dimension to this existing problem.

Thus, the idea of Plas-Stick, the trio says, was born out of the intention to give something back to the community, to their less-privileged peers. “The inequality that surrounds us and the need to eradicate it is what drives us,” says Ariana. “While we have access to water that is filtered using membrane systems or RO, they don't.” So the trio went deeper and researched on possible solutions to microplastics.



Plas-Stick demonstration
PHOTOS: SPECIAL ARRANGEMENT



“**It's difficult to understand how they impact you; to believe that something so small can actually cause something as big as cancer. It was difficult for us to grab at first, but I think our passion is what drove us.**”

– Ariana Agarwal, one of the members of Team Plas-Stick

Why tamarind seeds?

How did they figure out that tamarind seeds would help? Well, they were looking for a low-cost solution that could easily be implemented in rural areas. Tamarind seeds contain natural and sticky plant-based compounds that are used in food and industrial applications. “Once we began reading more research papers and experimenting with them in the lab, we realised that they do have particle binding properties,” Vivaan added.

Avyana elaborated on these properties: “So, the xyloglucan of the tamarind seeds is like a highly branched sort of structure. So, the branching helps us clump the microplastics and then pull them out.” Xyloglucan is a glue-like plant fibre that holds plant cells together, giving it its shape. It also helps the stem to grow.

Access in process

The team has gone through a lot of trials in the lab to get to their desired final product. They have also demonstrated the product in various government schools, reaching out to about 8,000 people. “We are working on making it an actual commodity that can be scaled up and offered to consumers,” says Ariana. “But I'm sure with the funding that the Earth Prize has provided us, we'll get there. Our first step is to obtain third-party validation.” Third-party validation is a development process where

a neutral expert tests the project and confirms that it is working.

Love and support

The team relied on each other quite a lot. “I think Ariana and Vivaan would both agree with me when I say our parents also supported us massively,” Avyana beams. “They weren't taking over work, but we had their moral support whenever we needed it.”

Future prospects

Third-party validations and scaling up production hubs are the key plans in near future. The trio also has longer plans in store. They want to test the product in different environments, geographies, and climates. “What we've done so far is Rajasthan-based, but we want to make it global.” says Ariana.

They also spoke about their personal futures. Ariana wants to pursue green finance, economics, and sustainability. Vivaan is also into green finance and economics.

Avyana looks forward to pursuing earth and environmental science.

A thought for readers

When asked if they had something to say to the readers, Avyana just mentioned ‘start’. “I think that's the only sole word that would be applicable here,” she says.

Vivaan highlights the importance of not giving up. “It's very easy to give up and do something you're comfortable with,” he explains. “But stepping out of a comfort zone, going into new areas where you've never actually explored and then trying to create an empire, I think that's what staying consistent and not stopping.”

Ariana talks about passion as a driving point. “It's difficult to understand how microplastics impact you; to believe that something so small can actually cause something as big as cancer,” she explains. “It was difficult for us to grab at first, but I think our passion is what drove us.” Plas-Stick shows that you don't need fancy technology for an effective solution. All it takes is something easily available.