Renewable bioplastics offer sustainable alternative to petroleum-based products

Most plastics today come from petroleum. About three-quarters of every barrel of oil goes to make gasoline, diesel and jet fuel; the remaining quarter goes to other products, including plastic. Making it from petroleum is doubly problematic, as it helps perpetuate our global dependence on fossil energy and it continues the long-term environmental degradation caused by synthetic plastics, which can take several hundred years to break down into simpler materials.

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Fortunately, there's a way to turn the tide: bioplastics. Produced from microorganisms, bioplastics are key to decarbonizing our economy while addressing the pollution problem. Right here in the desert Southwest, photosynthetic cyanobacteria, or blue-green algae, can be cultivated with sunlight and CO² captured from power plants, industrial processes or directly from the air. Carbon storage molecules harvested from the microbes then provide the raw material for making bioplastics.

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In a kind of virtual laboratory, polymer engineers can use AI to screen a vast number of polymer chemistries, predict their properties, and tune new biopolymers, rather than actually making and physically testing them all. This way, <u>BioManIAC</u> will help slash research and development expenses and accelerate creating a new marketable product.

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