Custom-built microbes offer a myriad of benefits

Genetically engineered microbes could be the “third industrial revolution,” wrote Amanda Maxham in *Voices for Reason*. Microbes such as yeast, which take in sugars and excrete by-products such as alcohol and carbon dioxide, can be genetically engineered to excrete medicines, flavors, or other chemical compounds. This opens up a huge opportunity for chemical or pharmaceutical companies to reduce costs of production and increase efficiency.

A Swiss company for example, Maxham wrote, has genetically engineered yeast to excrete vanilla flavoring. Another company, Amyris, engineered a strain of yeast to synthesize an anti-malarial drug known as artemisinin. This year, Maxham wrote, Amyris’s yeast produced 35 tons of artemisinin, enough for 70 million treatments. Not surprisingly however, this new technique has become a new target for the anti-GMO movement.

> Hundreds of new bio-synthesized compounds are in the development pipeline. A Swiss company is expecting to soon roll out a bio-synthesized vanilla, produced by yeast that have been genetically engineered to generate the flavoring as a by-product when fed sugar. Real vanilla beans are expensive, harvested from the seeds of a finicky orchid that grows in rainforest climates. It takes five hundred pounds of these seeds to produce a single pound of vanilla. Synthetic vanilla flavorings on the market today have failed to capture the complexity of genuine vanilla beans. But the Swiss company, Evolva, claims that its bio-synthesized vanilla comes much closer to the original and will be much cheaper to harvest.

Read the full, original story here: “The benefits of custom-built microbes”

Additional resources:

- “Companies rush to build ‘bio-factories’ for medicines, flavorings and fuels,” Washington Post
- “What’s That Smell? Exotic Scents Made From Re-engineered Yeast,” New York Times