Critters, plants and waste offer a more sustainable supply of catalysts

February 22 2017

From earthworm guts to mining waste, scientists are exploring a wide range of new sources of catalysts that could help us make medicines, fuels and electronics in a more sustainable way. The cover story in *Chemical & Engineering News* (*C&EN*), the weekly newsmagazine of the American Chemical Society, reports on the search.

Stephen K. Ritter, a senior correspondent at C&EN, notes that humans have used nature's catalysts dating back thousands of years, starting with enzymes from yeast to make bread, cheese, beer and wine. But in the 1970s, the advent of modern biotechnology allowed industry to shift from traditional animal and plant sources of enzymes to genetically modified organisms that could make the substances cheaper with higher purity and efficiency. The Earth's metals and minerals can also catalyze chemical reactions, but mining these substances from deep within the ground is becoming less economical.

To find new, more sustainable catalysts, scientists are scouring unexpected sources. One team has created an enzyme-packed earthworm powder that can help produce the blood-thinning medicine warfarin. As an alternative to underground mining for metals and minerals, researchers are sifting through above-ground possibilities. Agromining, for example, involves plants that take up high levels of metals from soil and water that can later be harvested and processed. The search could also help get rid of traditional mining waste, which itself contains recoverable minerals.

More information: "A more natural approach to catalysts," cen.acs.org/articles/95/i8/nat … roach-catalysts.html

Provided by American Chemical Society