

Toward a cleaner, more effective method for destroying hormone-like pollutants in wastewater

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Researchers report effectiveness of a powerful, environmentally-friendly catalyst in destruction of various estrogens that currently escape complete removal in our wastewater treatment plants. Their study is scheduled for the Feb. 15 issue of ACS' *Environmental Science & Technology*.

In the new study, Nancy Shappell and colleagues explain that endocrine disruptors, both natural hormones and hormone-like compounds, have been detected in the surface waters. Many of these endocrine disruptors have estrogenic activity. Ethinylestradiol, for instance, is an active ingredient in both the birth control pill and the newly-introduced “no period pill.” It is a major source of environmental estrogenic activity.

To address this problem, the researchers tested a new catalyst called Fe-TAML or Fe-B*. In the presence of hydrogen peroxide, the catalyst quickly and effectively destroyed various forms of estrogens typically found in post-treatment wastewater, removing 95 percent of the chemicals — including Ethinylestradiol — in 15 minutes.

Estrogenic activity was also diminished to a similar extent. Further research will evaluate Fe-B*'s efficacy on actual wastewater, in addition to more extensive evaluation of byproduct toxicities. Usefulness in wastewater treatment could be doubly beneficial, as Fe-B* has been reported to destroy harmful bacterial spores.

Source: ACS

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