

# Study finds 29 pesticides in Devon river

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River Culm. Credit: Dr David Santillo

Researchers have found 29 different pesticides in a single river in Devon.

Tests on four rivers in the county revealed 34 pesticides in total, as well as nine antimicrobials and veterinary drugs.

Scientists said they were surprised and concerned by the results, and warned there would be harmful effects for plants and wildlife.

The tests were carried out using a high-quality new technique created by scientists in Greenpeace Research Laboratories at the University of Exeter.

"We were surprised by both the number and concentrations of pesticides we found," said lead researcher Jorge Casado.

"The level of each individual pesticide was below EU legal limits, but those rules don't take account of mixtures.

"Little research has been done on the effects of combinations of pesticides.

"The findings are certainly a concern and, although it's hard to be sure of the impacts of mixtures of pesticides, there will certainly be effects on wildlife and plants in and around these rivers.

"Our study demonstrates an environmental problem not just in Devon but in any region affected by commercial agriculture."

The water samples were taken in rural areas from the rivers Culm, Exe, Otter and Tale.

The highest single concentration was of a pesticide called MCPA, recorded at more than 130 nanograms per litre of water.

The pesticides included eight that are not approved by the EU – although the researchers say these could have come from residues from historic uses, and some could have been by-products of other pesticides.

Five of the pesticides found – atrazine, carbendazim, diuron, griseofulvin and imidacloprid – were present in all the samples taken from the rivers.

The new testing method developed by the research team is the most accurate ever created.

It can detect chemicals even at very low concentrations and can also identify substances researchers may not be looking for.

In this case the scientists were screening for more than 250 pesticides, but the testing would also have revealed substances such as plastic additives and vitamins.

The paper, published in the journal *Analytica Chimica Acta*, is titled "Multi-residue analysis of [pesticides](#) in surface water by liquid chromatography quadrupole-Orbitrap high resolution tandem mass spectrometry."

Provided by University of Exeter

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