

# DDT, other banned pesticides found in Detroit-area black women: study

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Over half of a cohort of 23-35-year-old black women from Detroit had detectable levels of organochlorine pesticides in their blood, possibly from tobacco, alcohol, and water.

A new Boston University School of Public Health (BUSPH) study published in the journal *Environmental Research* finds detectable levels of DDE (what DDT becomes when metabolized in the body) and other banned [organochlorine pesticides](#) (OCPs) in the blood of over 60 percent of a cohort of black [women](#) of reproductive age in the Detroit area, with higher levels in women who smoked cigarettes daily, drank more alcohol, and drank more [water](#).

Dichlorodiphenyltrichloroethane (DDT) and other OCPs were banned decades ago. But they can dissolve into a person's body fat, and remain there for years, causing hormonal and metabolic issues, and even brain development issues from in-utero exposure.

"If cigarettes, alcohol, and drinking water are in fact exposing black women to pesticides, this matters!" says study lead author Dr. Olivia Orta, a postdoctoral research associate in the Department of Epidemiology at BUSPH.

"The sources that we identified as potential OCP correlates should be tested for pesticide contamination," she says, "especially drinking water."

However, Orta cautions that the study was not able to distinguish between bottled and tap water, or test participants' tap water for these chemicals, so "we do not want to suggest that black women in Detroit reduce their water consumption in response to our study findings," she says. Instead, the study points to the importance of water monitoring—which has been notoriously inequitable, as seen in nearby Flint—and the need to test for OCPs in tap and bottled water as well as in alcohol and tobacco, she says.

Orta and colleagues used data from the Study of Environment, Lifestyle, and Fibroids (SELF), a prospective cohort study of reproductive-age

[black women](#) recruited from the Detroit metropolitan area from 2010 to 2012. For the current study, the researchers analyzed [blood samples](#) from 742 fibroid-free participants, given when they entered the study, and their responses to questionnaires about health histories, demographics, behaviors, and other factors.

The researchers found detectable levels of four OCPs—dichlorodiphenyltrichloroethane (DDE), hexachlorobenzene (HCB), oxychlordan, and trans-nonachlor—in over 60 percent of the participants.

Adjusting for the other factors, the researchers found that heavy alcohol use was associated with 7-9 percent higher concentrations of DDE, oxychlordan, and trans-nonachlor in the women's blood plasma. Current smoking was associated with 10-19 percent higher concentrations of all four OCPs, and was highest for women who smoked ten or more cigarettes a day. Women who drank five or more glasses of water per day had 8-15 percent higher concentrations of all four OCPs, but especially trans-nonachlor, compared to women who drank two glasses of water or fewer per day.

The researchers also found evidence of exposure when the women were infants in the late 1970s and early-to-mid 1980s, the period when these pesticides were being banned. Study participants who were older had higher OCP concentrations, with each five-year age increment associated with 24 percent higher oxychlordan and 26 percent higher trans-nonachlor concentrations. Women who had been breastfed had 15 percent higher concentrations of DDE, 14 percent higher oxychlordan, and 15 percent higher trans-nonachlor than women who hadn't been breastfed.

**More information:** Olivia R. Orta et al. Correlates of organochlorine pesticide plasma concentrations among reproductive-aged black women,

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