

Gene-altering compounds released from forest fires

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Scientists are reporting that gene-altering substances called alkaloids are released in forest fires. Credit: Wikipedia Commons

Scientists in Washington State are reporting the first discovery of potent mutagenic substances in smoke from forest fires that often sweep through huge stands of Ponderosa pine in the western United States and Canada.

Their discovery of these mutagens — substances that can damage the genetic material [DNA](#) — is scheduled for the June 1 edition of ACS' *Environmental Science & Technology*.

In the study, Julia Laskin and colleagues note that forest fires long have been recognized as major sources of organic compounds containing [nitrogen](#). But their research is the first to show that the nitrogen

compounds exist as [alkaloids](#), which are naturally occurring mutagens that are produced by trees and other plants.

Ponderosa pine trees, the researchers note, often grow in droughty areas and in forests subject to large-scale outbreaks of fires, and have high levels of alkaloids in their needles. Fires help to transfer alkaloids from needles into tiny particles that can be then transported through the air. Noting that the alkaloids can be transported long distances, the scientists say that fires involving Ponderosa pines could have adverse human health effects.

More information: *Environmental Science & Technology*, “Molecular Characterization of Nitrogen Containing Organic Compounds in Biomass Burning Aerosols Using High Resolution Mass Spectrometry”

Provided by American Chemical Society ([news](#) : [web](#))

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