



MEDIA RELEASE

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Deakin University research finds diesel exhaust kills throat cells

Researchers at Deakin University have found that diesel exhaust is far more damaging to our health than exhaust from biodiesel, the plant-based fuel.

Associate Professor Leigh Ackland, Associate Head of Deakin's School of Life and Environmental Sciences, led a team of researchers who compared the effects of diesel exhaust and biodiesel exhaust on human airway cells. They found that diesel exhaust damaged and killed the cells, while biodiesel exhaust had little effect.

"Australia's escalating need for fuel is posing a major health problem," Associate Professor Ackland said.

"The fumes from burning fuels, including diesel, contributes to pollution and can cause heart disease, bronchitis and asthma. Efforts are underway to replace petrol and diesel with cleaner biofuels, such as biodiesel, but there is considerable resistance to this.

"This study provides clear evidence that diesel exhaust is more harmful to our health than biodiesel exhaust."

As it is not possible to study in real time what happens in the real human airway, the researchers conducted their research on human airway cells grown in a culture. The cells were exposed to the particulate matter emitted in diesel and biodiesel exhaust fumes.

"Particulate matter is the burnt material, including carbon particles, emitted into the air. This particulate matter is part of biodiesel and diesel fumes but the particles produced from biodiesel were much less damaging to the cells than particles produced from diesel," Associate Professor Ackland explained.

"Our research found that the particulate matter from diesel exhaust stimulated a 'death pathway' response that the body uses to dispose of damaged cells. This response caused the airway cells to fuse together and die.

"We saw hardly any cell death after treatment with biodiesel particulates."

Associate Professor Ackland said that the results of the study provide support for calls to move towards replacing petrol and diesel with cleaner biofuels.

"It is clear that breathing in diesel fumes is going to have a far more detrimental effect on our health than biodiesel. Given the level of cell death we have found, diesel exhaust could be the cause of respiratory disorders such as asthma and could even be implicated in cancer," she said.

The study has been published in the latest edition of the international journal *Immunology and Cell Biology*.

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Associate Professor Leigh Ackland is available for interview.

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