

Iconic river red gums threatened by rising CO2 levels

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River red gum in Wyndham Vale, Victoria. Credit: Rexness, Flickr

Australia's iconic and most widespread tree species the river red gum is under serious threat by rising CO₂ levels and their survival may depend on curbing carbon emissions, a study led by The Australian National University (ANU) has found.

The research has found that if ambient CO₂ levels were doubled, river

red gums would produce and store lower amounts of essential oils in their leaves, putting the [trees](#) at risk.

Study co-author Dr Carsten Kulheim from ANU said these [essential oils](#) were vital to defend the trees from insect and mammal herbivores, including [koalas](#), eating them.

"The future of the iconic [river red gum](#) is unclear even without taking the further effects of climate change into account," said Dr Kulheim from the ANU Research School of Biology.

"River red gums grow across all of mainland Australia and they are the most widespread gum tree we have."

Dr Kulheim said the various species of gum trees have different types of eucalyptus oil, which the researchers think is due to the variety of insects and mammals that eat gum leaves.

"Some eucalyptus oils defend the gum tree from certain insects, others from koalas feeding on them," he said.

"Since we don't have koalas in central Australia, the gum trees don't need to defend themselves there against koalas."

Dr Kulheim said some plant species were known to change their defence chemicals when grown under elevated CO2 levels.

"Since this effects how the trees are able to defend themselves against leaf-eating animals, we wanted to find out how future increases in CO2 would affect river red gums defence chemicals," he said.

"This is just one of many examples of how [greenhouse gas emissions](#) affect our environment, providing further evidence that action is needed

now."

More information:

www.publish.csiro.au/bt/acc/BT16183/BT16183_AC.pdf

Provided by Australian National University

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