

Environment change threatens indigenous traditional knowledge

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Nepalese woman in the Annapurna region of north-central Nepal. Credit: Mark Watson, Royal Botanic Garden Edinburgh

The way indigenous cultures around the globe use traditional medicines and pass on knowledge developed over centuries is directly linked to the natural environment, new research has found.

This makes indigenous cultures susceptible to environmental change, a

threat that comes on top of the challenges posed by globalisation.

"Traditional medicine provides health care for more than half the world's population, with 80 per cent of people in developing countries relying on these practices to maintain their livelihood. It is a very important part of traditional knowledge," says Dr Haris Saslis-Lagoudakis, from The Australian National University's (ANU) Research School of Biology.

"This knowledge is typically passed down from generation to generation, or it is 'borrowed' from neighbours. Because of this borrowing, globalisation can homogenise medicinal practices of different communities, leading to loss of medicinal remedies."

But this is not the only challenge that indigenous cultures face.

"Imminent changes in the [environment](#) also pose a threat to traditional knowledge," explains Dr Saslis-Lagoudakis.

"Traditional medicine utilises plants and animals to make natural remedies. Despite a lot of these species being under threat due to ongoing climatic changes and other human effects on the environment, the effect that these changes can have on traditional medicine is not thoroughly understood."



Nepalese Sherpa guide in the Manaslu region of central Nepal proudly holding *Meconopsis manasluensis* P.A.Egan. Several species of *Meconopsis* have medicinal properties, especially in reducing fevers and treating bile diseases. Credit: Mark Watson, Royal Botanic Garden Edinburgh

Dr Saslis-Lagoudakis and a team of international researchers led by the University of Reading (UK) investigated how the environment shapes medicinal plant use in [indigenous cultures](#), specifically Nepal, a country in the Himalayans that has outstanding cultural, environmental and biological diversity.

"By understanding the relationship between environment and traditional knowledge, we can then understand how cultures have responded to changes in the environment in the past," he says.

The team studied 12 ethnic groups from Nepal and recorded what plants different cultures use in traditional medicine. They calculated

similarities in their medicinal floras and also calculated similarities in the floras these cultures are exposed to, how closely related they are, and their geographic separation.

"We found that Nepalese cultures that are exposed to similar floras use similar plant medicines.

"Although shared cultural history and borrowing of traditional knowledge among neighbouring cultures can lead to similarities in the plants used medicinally, we found that plant availability in the local environment has a stronger influence on the make-up of a culture's medicinal floras.

"Essentially, this means that the environment plays a huge role in shaping traditional knowledge. This is very important, especially when you think of the risks that these cultures are already facing.

"Due to ongoing environmental changes we are observing across the globe, we might lose certain plant species which will lead to changed ecosystems, and an overall poorer natural environment. This will then affect what plants people can use around them.

"We should be concerned about the fate of the traditional knowledge of these cultures. However, understanding the factors that shape [traditional knowledge](#) can provide the underpinnings to preserve this body of knowledge and predict its future."

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