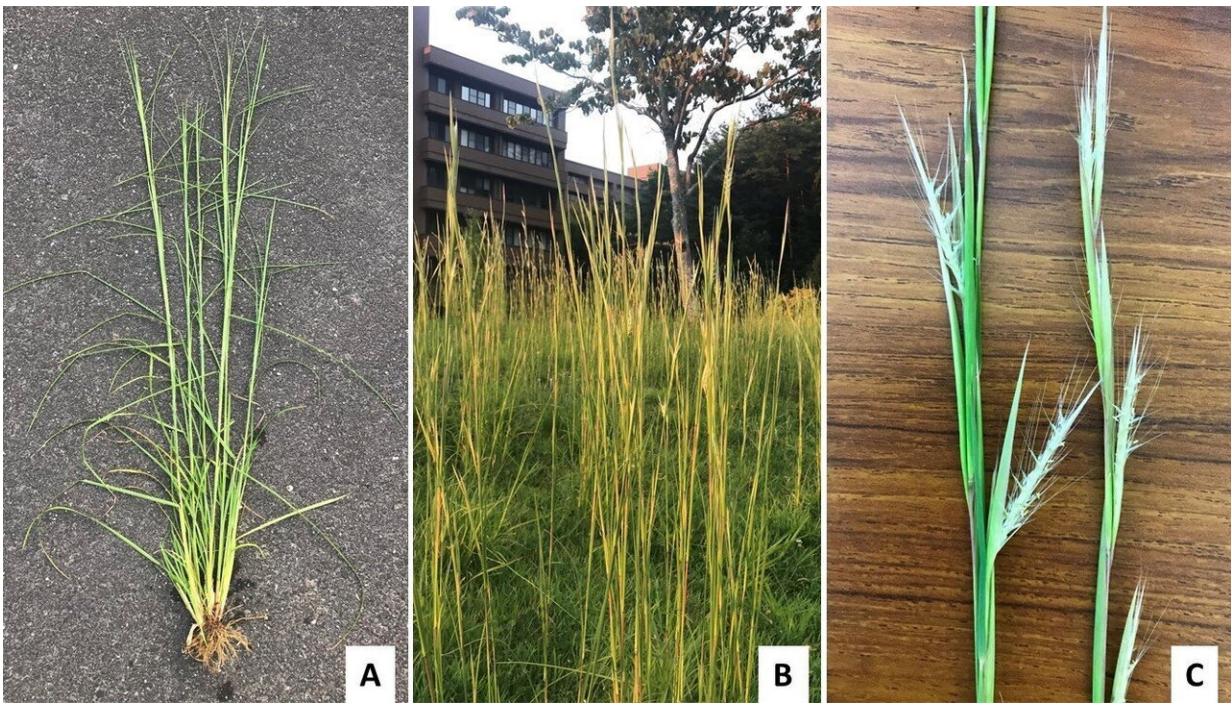


Invasive weed may help treat some human diseases, researchers find

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Andropogon virginicus. (A) Bud stage; (B) Flowering stage; (C) Spikelets.
Credit: Quan, Hiroshima University

Native to the southeastern United States, a weedy grass has spread northward to Canada and also made its way to Australia and Japan. *Andropogon virginicus* grows densely packed and up to seven feet tall, disrupting growth patterns of other plants and competing for resources. When burned, it grows back stronger. There is no way to effectively

remove the weed once it has invaded. But there might be a way to use it to human advantage.

An international team of researchers has found that *A. virginicus* extracts appear to be effective against several human diseases, including diabetes and cancer. The results were published on Dec. 31, 2020, in a special issue of *Plants*, titled "Biological Activities of Plant Extracts."

"*A. virginicus* is an [invasive weed](#) that seriously threatens [agricultural production](#) and economics worldwide," said paper author Tran Dang Xuan, associate professor in the Transdisciplinary Science and Engineering Program in the Graduate School of Advanced Science and Engineering at Hiroshima University. "However, no solution efficiently utilizing and tackling this plant has been found yet. In this paper, we highlight the potential application of *A. virginicus* extracts in future medicinal production and therapeutics of chronic diseases such as type 2 diabetes and blood cancer, which can deal with both crop protection and human health concerns."

Researchers found high levels of flavonoids in the samples they extracted from the weed. These plant chemicals have significant antioxidant and [anti-inflammatory properties](#), according to Xuan. When tested against a variety of cell lines, the extracted plant chemicals bonded to free radicals, preventing damage to the cells. At skin level, this helps prevent age spots by inhibiting a protein called tyrosinase. Among other, deeper healthful actions, this bonding also helps prevent knock-on cellular actions that can lead to type 2 diabetes.

The team also specifically applied the extracted chemicals to a line of chronic myelogenous leukemia, a rare blood cancer. The extract appeared to kill off the cancer cells.

Xuan said the researchers plan to establish a comprehensive process to

isolate and purify the compounds responsible for known biological properties, as well as work to identify new uses. They will further test the therapeutical effects of the compounds, with the eventual goal of preparing functional pharmaceuticals for human use.

"Although *A. virginicus* has been considered a harmful invasive species without [economic value](#), its extracts are promising sources of antioxidant, anti-diabetic, anti-tyrosinase, and antitumor agents," Xuan said.

More information: La Hoang Anh et al. Antioxidant, Anti-tyrosinase, Anti- α -amylase, and Cytotoxic Potentials of the Invasive Weed *Andropogon virginicus*, *Plants* (2020). [DOI: 10.3390/plants10010069](https://doi.org/10.3390/plants10010069)

Provided by Hiroshima University

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