

Plant-based products are not lowering blood pressure

July 16 2018, by Laurie Fickman

In the high-pressure world of lowering hypertension, a surprising favorite isn't standing up too well in clinical trials.

"Plant products per se or traditional antioxidants like vitamins failed to have a positive impact on renal or cardiovascular health during clinical studies," said Mustafa F. Lokhandwala, UH College of Pharmacy executive vice dean for research and director of the UH Heart and Kidney Institute. Plant-based products include chemical supplements like resveratrol, sulforaphane and curcumin.

So instead of relying on similar outward cures, Lokhandwala and Anees Banday, research associate professor of pharmacology, are looking inward, where they have found that a peptide, Angiotensin 1-7, that humans already possess can relieve [oxidative stress](#) and drive [blood pressure](#) back into normal ranges. Their hypothesis is backed by \$2.64 million from the National Heart, Lung, and Blood Institute.

High blood [pressure](#) is a common condition that can cause uncommon damage. With each beat of the [heart](#), blood is pushed through arteries to the rest of the body. That's force, or pressure. If that pressure is too high, either because of the amount of blood the heart pumps or the amount of resistance to pumping it, health problems including heart disease and stroke can occur.

It is well known that kidneys, or the renal system, regulate sodium and blood pressure. "Studies from our lab and others show that renal-specific

oxidative stress could be an independent risk factor for systemic hypertension," said Lokhandwala. Oxidative stress is an imbalance between the production of free radicals (unstable atoms that can damage cells) and the body's ability to counteract their threats.

In the kidneys, oxidative stress could cause [high blood pressure](#) mostly through poor sodium regulation.

Since its discovery in 1988, the Angiotensin 1-7 peptide has been linked to protective roles in cardiovascular disease and in the health of the kidney, brain and other organs. Lokhandwala and Banday collected experimental evidence to suggest Angiotensin 1-7 could protect [kidney](#) cells from oxidative [stress](#) and reduce [blood](#) pressure.

Eventually, a pill that could activate Angiotensin 1-7 signalling will be a better alternative to currently available medication, said Lokhandwala.

If Angiotensin 1-7 is found to be effective, it will avoid many of the side effects which limit the use of existing drugs.

"Today in hypertension treatment, effective therapy is important, but therapy with fewer side effects would be a plus," said Lokhandwala. "Also, drugs to which patients do not develop tolerance is an important issue."

Provided by University of Houston

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