Nutrition and Health

PHOTO: North Carolina A&T State University Agricultural Research Station

Land-grant university research uses natural methods to combat issues in antimicrobial resistance

Resistance to commonly used antimicrobials is a growing threat to human health. Researchers at land-grant universities have identified natural substances that can be used to fight bacteria and other microbes. These alternatives may be more sustainable options as they could pose fewer health risks and help limit the spread of antimicrobial resistance. Reducing antimicrobial resistance is key to preserving the long-term effectiveness of available treatments for many diseases.

Here are a few examples of that work:

- Long-term application of antibiotics for human illness as well as for growth of poultry, pigs and cattle has led to antibiotic resistance. Researchers in **Wisconsin** developed a probiotic bacterium as a platform to deliver novel antimicrobials. *Wisconsin Agricultural Experiment Station; Hatch. See full statement.*
- Genes responsible for antimicrobial resistance can spread from microbe to microbe through genetic material called plasmids. This transfer that often occurs in the gut. Researchers in **Iowa** found a sharp drop in plasmid transmission in resistant bacterial strains exposed to a zinc supplement, as well as a further disruption in the transmission process. Zinc supplements are inexpensive and readily available supplement, making them a promising new part of fighting antimicrobial resistance and support longer-term effectiveness of antibiotics. *Iowa Agriculture and Home Economics Experiment Station; Hatch. See full statement.*

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The National Land-grant Impacts Database (NIDB) documents the individual and collective impacts of the national Land-grant University System of joint research, education and Extension. Much of this work is supported by capacity and competitive funds through the USDA's National Institute of Food and Agriculture.

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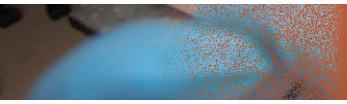

- Traditional disinfectants used to reduce the spread of viral diseases such as COVID-19 can be a major public health concern if not handled properly. Researchers in **North Carolina** investigated the use of plant-based extracts as an alternative, safer disinfectant. They found that mushroom and hemp extracts can potentially be used as a key ingredient to create a disinfectant that can be used as a preventive and curative agent. *North Carolina A&T State University Agricultural Research Station; Evans-Alan. See full statement.*