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ANTI-MICROBIAL RINSE/FLUSH FOR FOODS, FOOD PREP SURFACES, MEDICAL CATHETERS AND TUBING, AND OTHER SURFACES

(RFT-559)

Invention Summary:

Food safety and storage is an important concept. US FDA estimates about 48 million cases of foodborne illness annually and there is a constant need for better food safety solutions at the production level. Researchers at NDSU have developed an antimicrobial water-based rinse that contains active amounts of acetoacetate (AAA) and ethyl acetoacetate (EAA), which can be used to reduce microbial contamination on many surfaces. This anti-microbial composition has been tested on ground beef as well as on chicken meat and has exhibited non-toxic nascent properties. This composition affects the motility of biofilm-forming microbes, hence, slashing the biofilm amounts and improving the shelf life of meat products. Additionally, this composition has varied applications, outside food safety; predominantly in the small medical device industry.

Benefits:

1. Pure, non-toxic composition. EAA is an FDA-approved food additive.
2. Compatible with raw meat from different sources viz beef, pork, poultry, and seafood
3. Heat resistant, no adverse reaction to heating up to 200ºF
4. Ease of application - spray or brush
5. Easily incorporated in any suitable liquid or semi-solid media
6. Low treatment time - 30 minutes
7. Up to 10-fold reduction in live bacteria count post-treatment
8. Comparable to industry standards - Effective against planktonic and biofilm-producing bacteria
9. Effective against known food pathogens such as *E. coli, Pseudomonas, Salmonella, Cronobacter*, and *Campylobacter*
10. Used as an alternate liquid disinfectant or in combination with other antimicrobials for desired results
11. Potential to be integrated directly into polyurethane and other materials, to create materials that kill microbes on contact

Patents:

This technology is patent pending in the US (US 2019/0082688) and is available for licensing/partnering opportunities.

NDSU Research Foundation
1735 NDSU Research Park Drive Dept. 4400 PO Box 6080 Fargo, ND 58108-6050
701.231.8173 or 701.231.6659 Fax 701.231.6661 www.ndsuresearchfoundation.org

Applications:

Food industry applications:

- Food/produce rinse or spray to slow spoilage and increase shelf life
- Food/produce rinse to reduce the numbers and transfer of pathogens
- Flush food processing equipment and tubing
- Wash for food preparation and handling surfaces

Medical industry applications:

- Liquid flush for catheters, tubes, and other devices that remain in contact with patients for an extended period of time.
- Wash for many surfaces in common areas of clinics, hospitals, labs, nursing homes, etc.

Phase of Development:

This technology has successfully completed laboratory testing with reproducible results.

Contact:

Saurabhi Satam

Business Development and Licensing Associate

ssatam@ndsurf.org

http://www.ndsuresearchfoundation.org/

701-231-8173