



## Development of Food-Grade Fungal Fermentates with Antimicrobial Activity

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### The Invention

The present invention relates to a 'sugar fermentate of edible fungi' (i.e., cultures of GRAS species from the genus *Aspergillus*) that exhibits antimicrobial activity (e.g., against *Listeria monocytogenes*, *Salmonella typhimurium*, *Escherichia coli*, *Staphylococcus aureus*, MRSA, and the yeast *Candida albicans*). The inventors cultured each of several strains of two *Aspergillus* species (*A. oryzae* and *A. sojae*) in liquid culture medium (6-9 days, 25 degrees C) and filtered the product to obtain a cell free fermentate that the inventors call 'NP' (for 'Natural Preservative'). The liquid medium and the *Aspergillus* species are GRAS, so NP could be used directly as a food additive or in environmental or topical applications, or the composition could be lyophilized for use in powdered form, or extracts could be produced, such as the ethyl acetate extract that the inventors applied to disks in an agar disk diffusion assay to assess antimicrobial properties.

### Applications

- Food applications
- Activity across a variety of harmful microbes
- Topical and surface applications

### Key Benefits

- Potential GRAS status and "clean label"
- Food and surface applications
- Effective against *Listeria monocytogenes*, *Salmonella typhimurium*, *Escherichia coli*, *Staphylococcus aureus*, MRSA, and the yeast *Candida albicans*

### Additional Information

#### For More Information About the Inventors

- [Jaehyuk Yu](#)

#### Tech Fields

- [Animals, Agriculture & Food : Food ingredients & additives](#)
- [Animals, Agriculture & Food : Food safety & quality](#)
- [Therapeutics & Vaccines : Anti-infectives \(antibacterials, antifungals, antivirals\)](#)

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