



DuraShield[™] Natural Food Protection Blends: Dual Functional and Synergistic Food Preservation System





Shelf life limiting factors in foods



- Oxidation
- Flavor
- Color
- Protein function/texture
- Loss of nutrients
- Microbial Spoilage
- Flavor
- Color
- Texture
- Gas Production

















PLANT DERIVED ANTIOXIDANTS









Plant Derived

Rosemary (Carnosic Acid, Carnosol)

Mixed Tocopherols (Vegetable Oils)

Ascorbic Acid (Corn Derived)

Acerola Cherry (Ascorbic Acid)

Citric Acid (Sugar Fermentation)

Green Tea (Catechins)



KALSEC NATURAL FOOD PROTECTION

Natural Antioxidants

Herbalox® Rosemary Extract

Duralox®
Oxidation
Management
Blends



Cultured Dextrose

Buffered Vinegar

Natural Food Protection

DuraShield[™]
Natural
Food
Protection
Blends

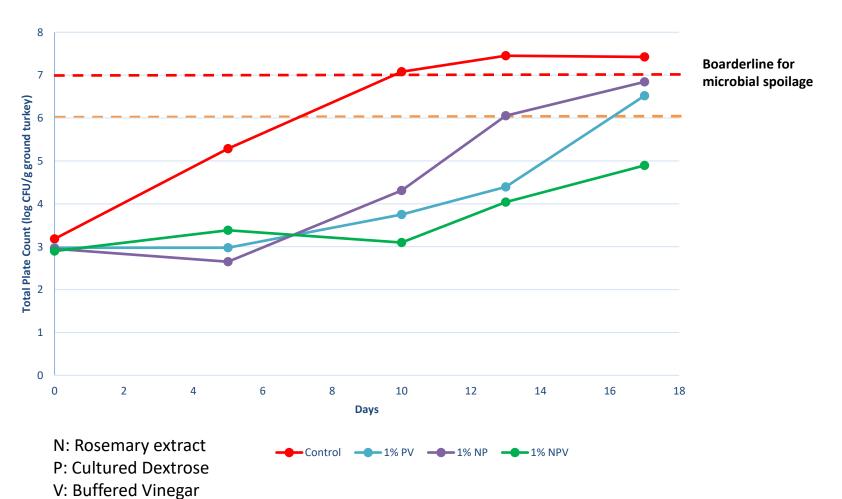






DURASHIELD BLENDS FOR FRESH GROUND POULTRY

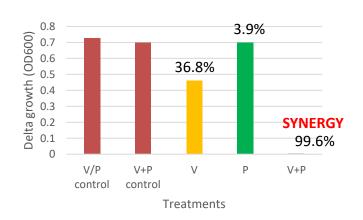
Growth Inhibition of spoilage microorganisms in fresh ground turkey (vacuum package, 4°C)

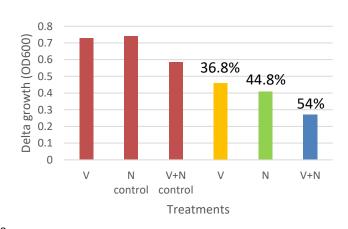


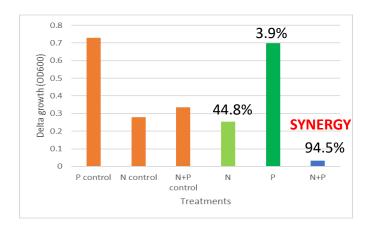


SYNERGY TEST

Synergy test with N, CD, V against *Pseudomonas*



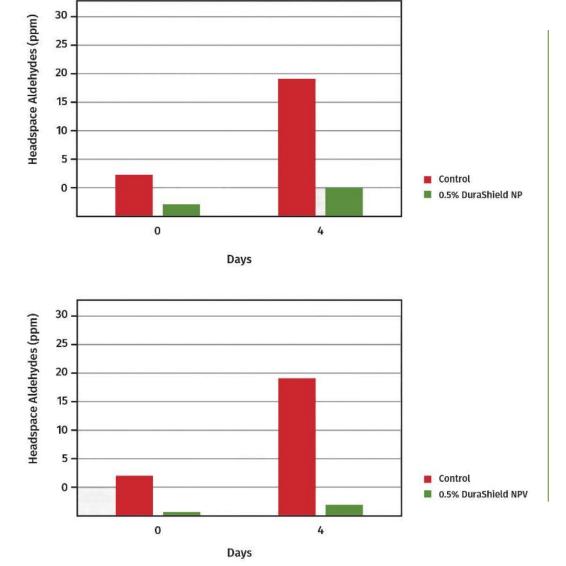




CD: 0.2% Cultured Dextrose N: 1% Dried rosemary (CA/CN) V: 0.044% Buffered Vinegar



OXIDATIVE PROTECTION IN COOKED CHICKEN

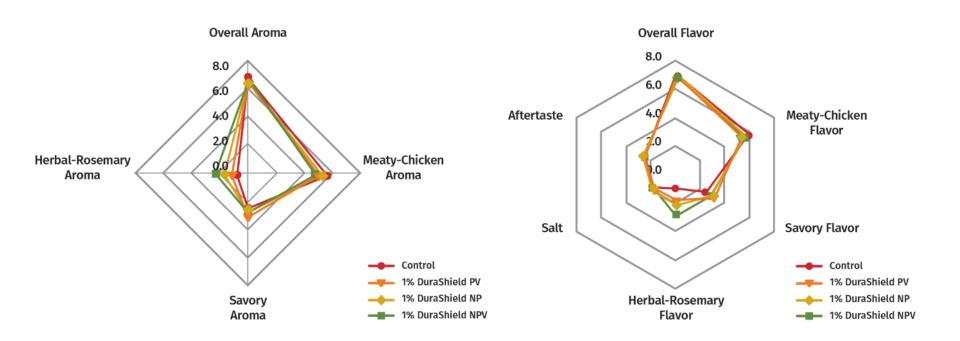


In addition to effectively inhibiting microbial spoilage, DuraShield Blends greatly suppressed oxidation in cooked chicken.



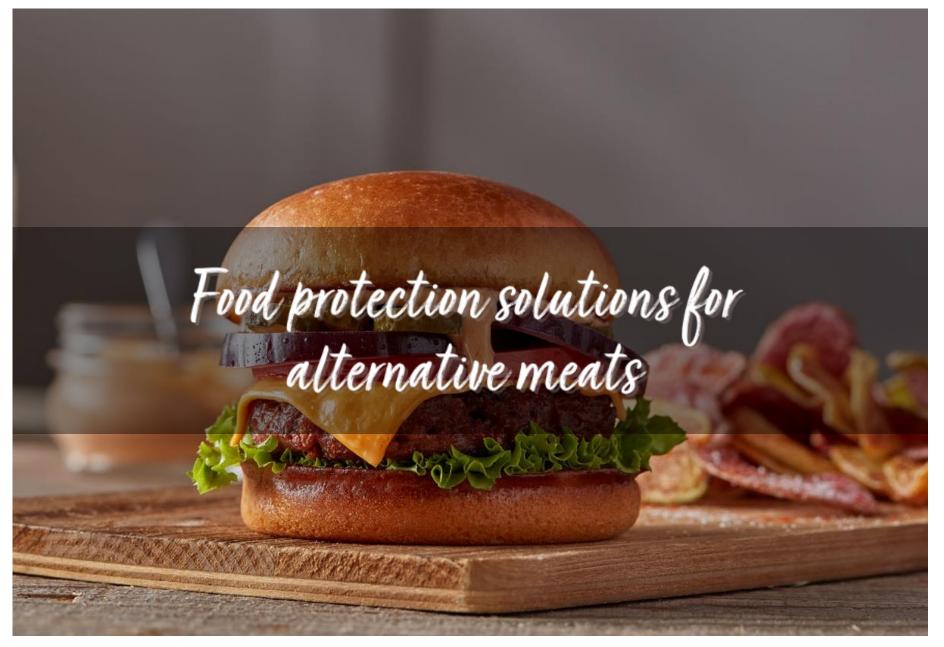
SENSORY EVALUATION OF DURASHIELD BLENDS

Cooked Chicken Patty



The incorporation of DuraShield Blends did not affect the flavor and aroma profile of the cooked chicken and only showed minimal impact on the herbal flavor







DURASHIELD FOOD PROTECTION BLENDS FOR SOY-BASED MEAT ALTERNATIVES



Objective

To determine the inhibitory effects of DuraShield Food Protection Blends against spoilage microorganisms in soy-based meat alternatives

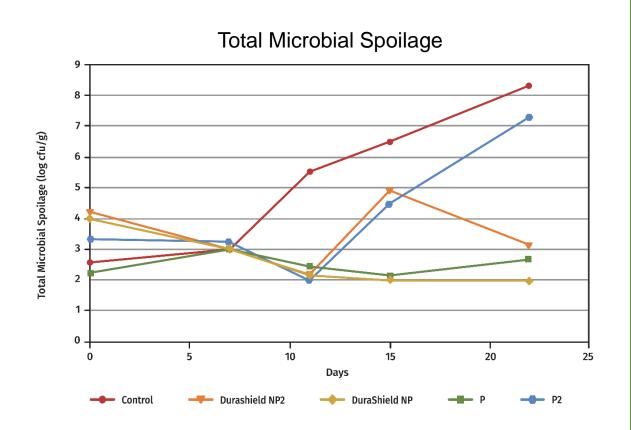
Material and Methods

- Plant-based burger patties were frozen overnight on day of preparation (D0)
- On D0, frozen patties were vacuum packaged and stored in our retail style refrigerator at 4-7°C
- Microbiological counts were performed by plating on the Plate Count Agar (PCA) medium

Treatment	Ingredients
P*	Cultured Dextrose
NP	Rosemary Extracts+ Cultured Dextrose
P2*	Cultured Dextrose
NP2	Rosemary Extracts+ Cultured Dextrose



EXTENDING SHELF-LIFE IN SOY-BASED MEAT ALTERNATIVES



NP and NP2 were effective in inhibiting spoilage microorganisms throughout the shelf-life compared to control

There was a synergistic antimicrobial effect with rosemary when blended with cultured dextrose





