

# CAMLIN FINE SCIENCES

## TECH BULLETIN



### CHALLENGE

Discoloration and off-flavors reduce shelf life, drive waste, and cut into your bottom line

### PROTECT COLOR AND FLAVOR

Targeting one is easy. Protecting both? You need a blend.

Acerola protects red color by stabilizing myoglobin, but doesn't slow flavor loss.

Green tea slows flavor degradation by reducing lipid oxidation, but doesn't preserve color.

Only NaSure® 76, our clean-label blend of both, protects appearance and taste — extending shelf life where it matters most: on the shelf and on the plate

### WHY IT MATTERS

- Longer shelf life
- Less waste
- Clean-label to meet evolving consumer demands

## Redder Meat. Better Flavor. Longer Shelf Life.

Get the protection you need from natural extracts.

Consumers reject discolored meat, even when it's safe to eat, costing processors valuable product and margin. Visual cues like browning and oxidation driven off-flavors are among the biggest contributors to meat waste. At Camlin Fine Sciences, we tested four natural extract treatments on fresh ground beef to evaluate how well each protected color, flavor, and shelf life — what they could offer meat processors looking for clean-label performance that actually works.

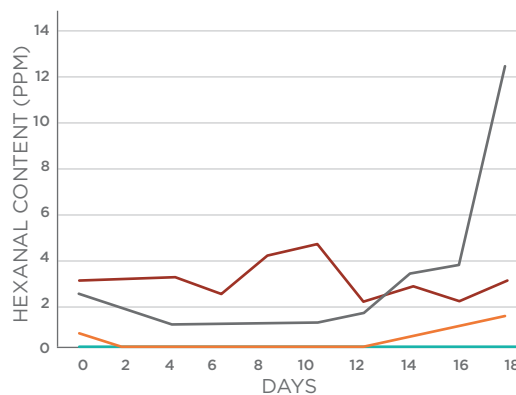
### WHAT WE TESTED

We tested four natural extract treatments on 85:15 ground beef patties stored for in a refrigerated, lighted display case:

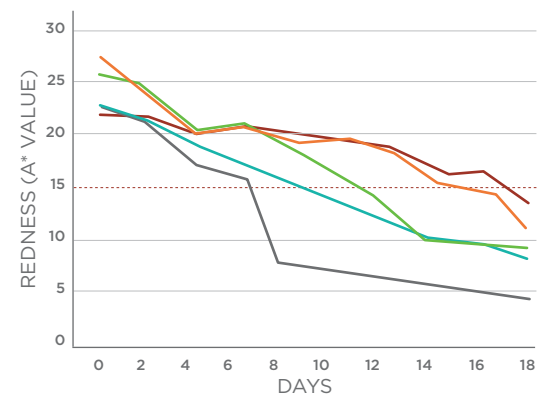
- Untreated (control)
- Green Tea Extract
- Acerola Extract
- Acerola + Green Tea Extract Blend
- Rosemary Extract

Each treatment was measured for lipid oxidation (hexanal content), color retention ( $a^*$  value), and visual appearance at multiple points in the 18 day storage period.

LIPID OXIDATION OVER TIME



COLOR RETENTION OVER TIME



- UNTREATED
- ACEROLA EXTRACT
- ROSEMARY EXTRACT
- GREEN TEA
- ACEROLA EXTRACT + GREEN TEA

## WHAT WE FOUND

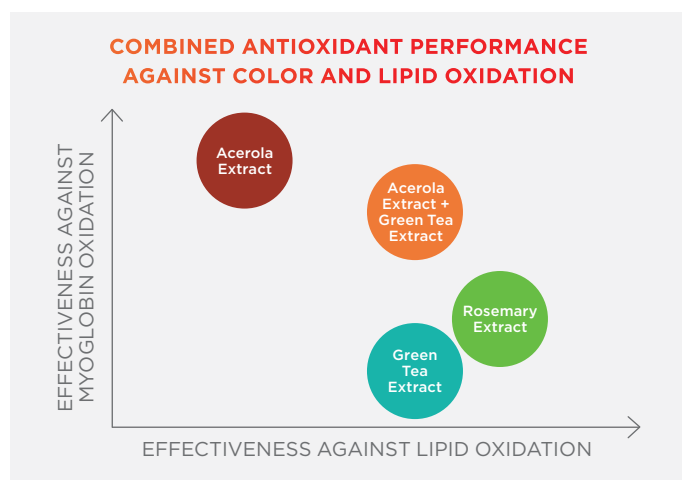
Acerola extract significantly extended red color retention, maintaining  $a^*$  values above consumer acceptance thresholds through Day 15. That's nearly 10 days longer than the untreated control. It's a critical gain in shelf life when consumer perception is on the line. Green tea and rosemary extracts were both effective at reducing lipid oxidation, with hexanal levels remaining low throughout the storage period.

The combination of acerola and green tea delivered balanced performance, slowing both color and flavor degradation for longer-lasting shelf life. The synergy between the two offered a practical, natural solution for processors focused on clean-label formulations that still need measurable impact.

Only NaSure® 76 hits both targets — visible color retention and real flavor stability.



Sample	Day 0	Day 4	Day 12	Day 18
UNTREATED				
ACEROLA EXTRACT				
ROSEMARY EXTRACT				
GREEN TEA				
ACEROLA EXTRACT + GREEN TEA EXTRACT				



## The Takeaway: Better Shelf Life, Naturally

Natural extracts don't just slow oxidation, they help preserve product value. With rising expectations for freshness, quality, and label transparency, a solution like NaSure® 76 — our blend of acerola and green tea — delivers the shelf life extension meat processors need without compromising on label goals.

## SEE HOW IT CAN WORK FOR YOU

Our team will help you design a shelf-life strategy that meets your product goals for freshness, flavor, and clean-label compliance.

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