BOTTLE STABILITY

Presenter: Jasha Karasek

Winemaking Specialist Enartis USA

WEBINAR INFO

- 40 Minute presentation + 20 minute Q&A
- Save Qs until end of presentation
- Use tab #2 in chat box for audio/connection issues
- Poll questions
- Recording in progress!

OUTLINE – BOTTLE STABILITY

- Why we care
- Wine stability challenges
- Bottle stability analysis
- Solutions for wine stability challenges

BOTTLE STABILITY: WHY DO WE CARE?

Consumer perception!

WINE STABILITY CHALLENGES

- **Microbial** – Wild yeast, *Brettanomyces*, Lactic acid bacteria, *Saccharomyces*, *Zygosaccharomyces*, Acetobacter, +…

- **Colloidal** – Protein, color, tartrates

- **Oxidative** – Browning, pinking, lightstruck, reduction, off-flavors

- **Chemical** – Haloanisoles (TCA, TBA, Etc)

USEFUL ANALYSIS FOR BOTTLE STABILITY

Pre/Post Bottling Analysis:

Microbial: PCR, culture plating, microscopic scan, unfiltered red/white panel, bottled wine sterility test

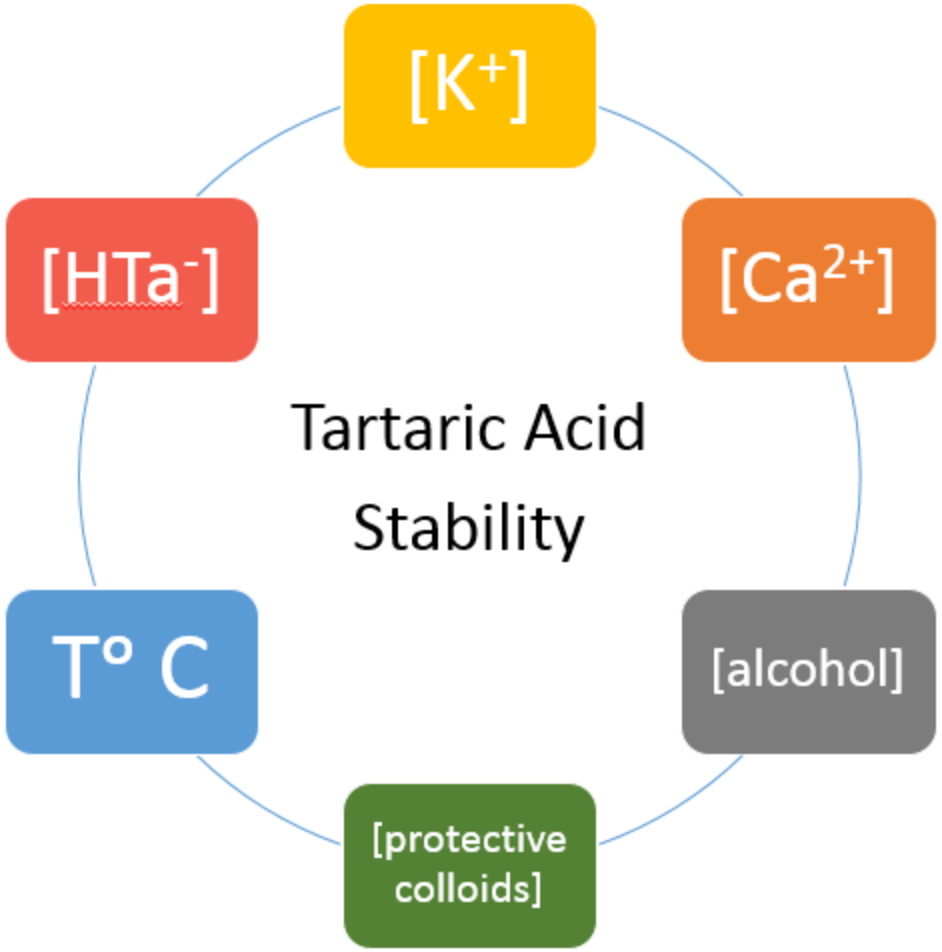
Colloidal: Heat stability, cold stability, bentonite fining trials, CMC panel, red color stability

Oxidative: Oxidative stability, pinking potential, Antioxidant Capacity (CAOX)

Chemical: Cork aroma evaluation, Haloanisole panel

VINQUIRY LABORATORIES by enartis USA

TARTRATE STABILITY : SOURCES/CAUSES



POTASSIUM BITARTRATE REMEDIATION STRATEGIES

SUBTRACTIVE STRATEGY

REMOVAL OF POTASSIUM or POTASSIUM BITARTRATE

Chilling
Electrodialysis
Ion Exchange

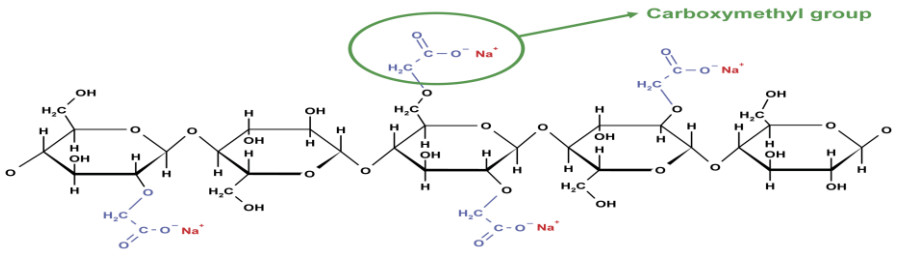
ADDITIVE STRATEGY

PROTECTIVE COLLOIDS

CMC
Mannoproteins
Gum Arabic
KPA

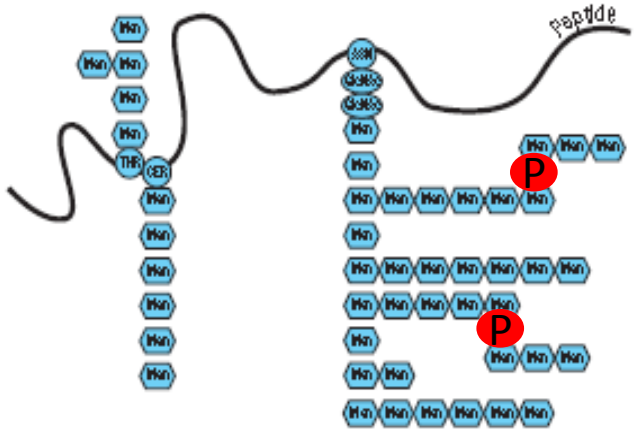
POTASSIUM TARTRATE STABILITY: ADDITIVE METHODS PROTECTIVE COLLOIDS

CMC – CARBOXYMETHYL CELLULOSE

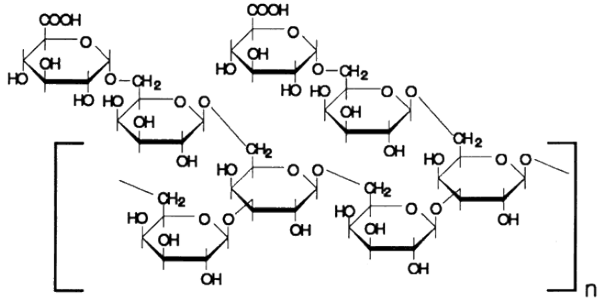


enartis STAB
CELLOGUM LV 20

MANNOPROTEINS



GUM ARABIC



CITROGUM®

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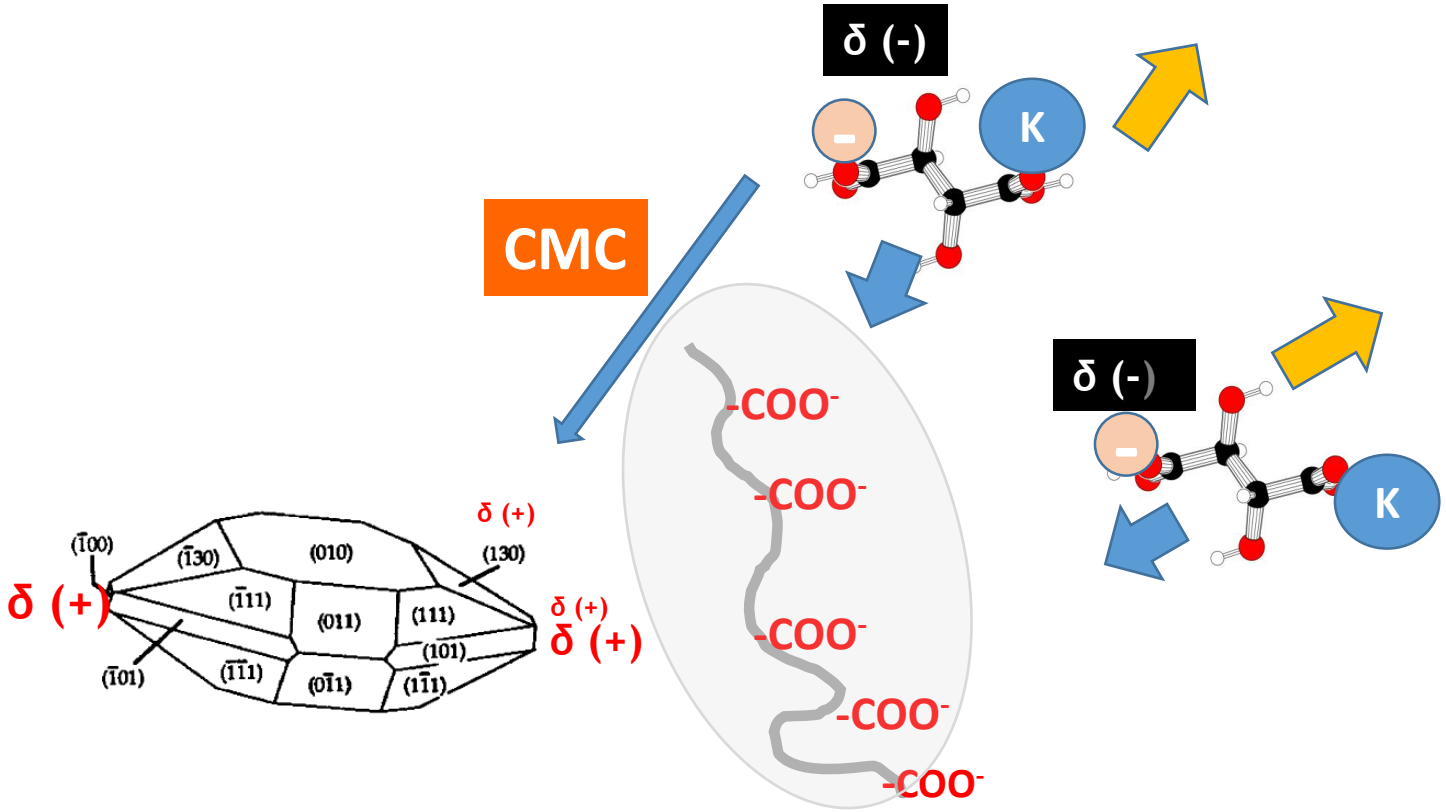
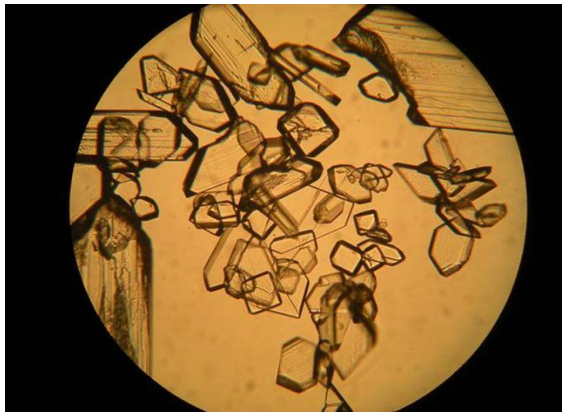
CLK+

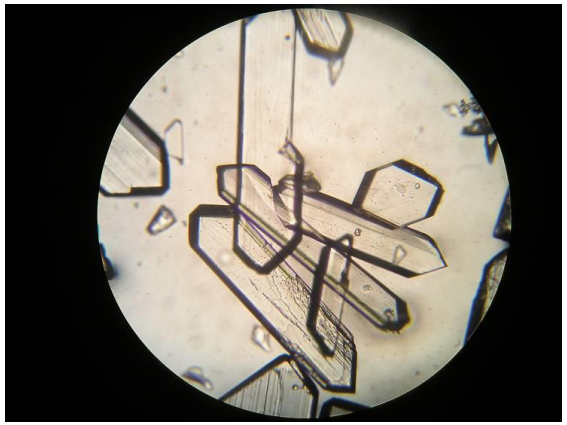
POTASSIUM TARTRATE STABILITY: PROTECTIVE COLLOID ACTION



POTASSIUM TARTRATE STABILITY: ADDITIVE METHODS PROTECTIVE COLLOIDS

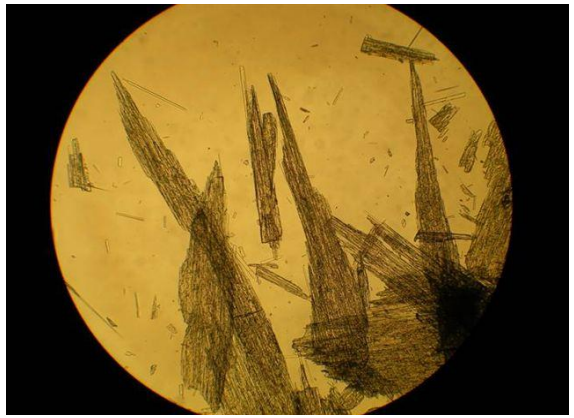
KHT CRYSTALS

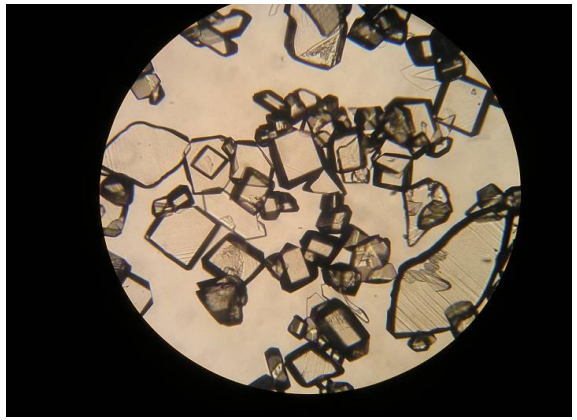




KHT crystals in 13% EtOH solution

KHT CRYSTALS FORMED IN PRESENCE OF CMC





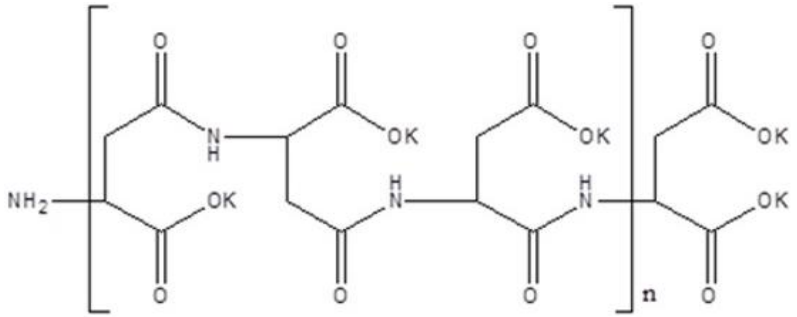
KHT crystals in 13% EtOH solution + gum arabic

Primitivo 2015. Effetto CMC+ GA Verek

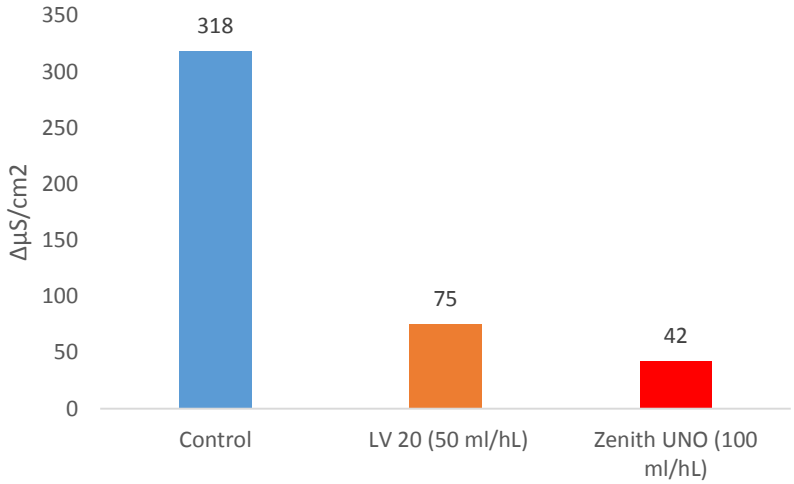
POTASSIUM TARTRATE STABILITY ADDITIVE METHODS METAL CHELATOR

POTASSIUM POLYASPARTATE – KPA

- polyamino acid (aspartic acid)
- Chelates cations
- High affinity for potassium
- Disrupts crystal formation
- Very high effectiveness

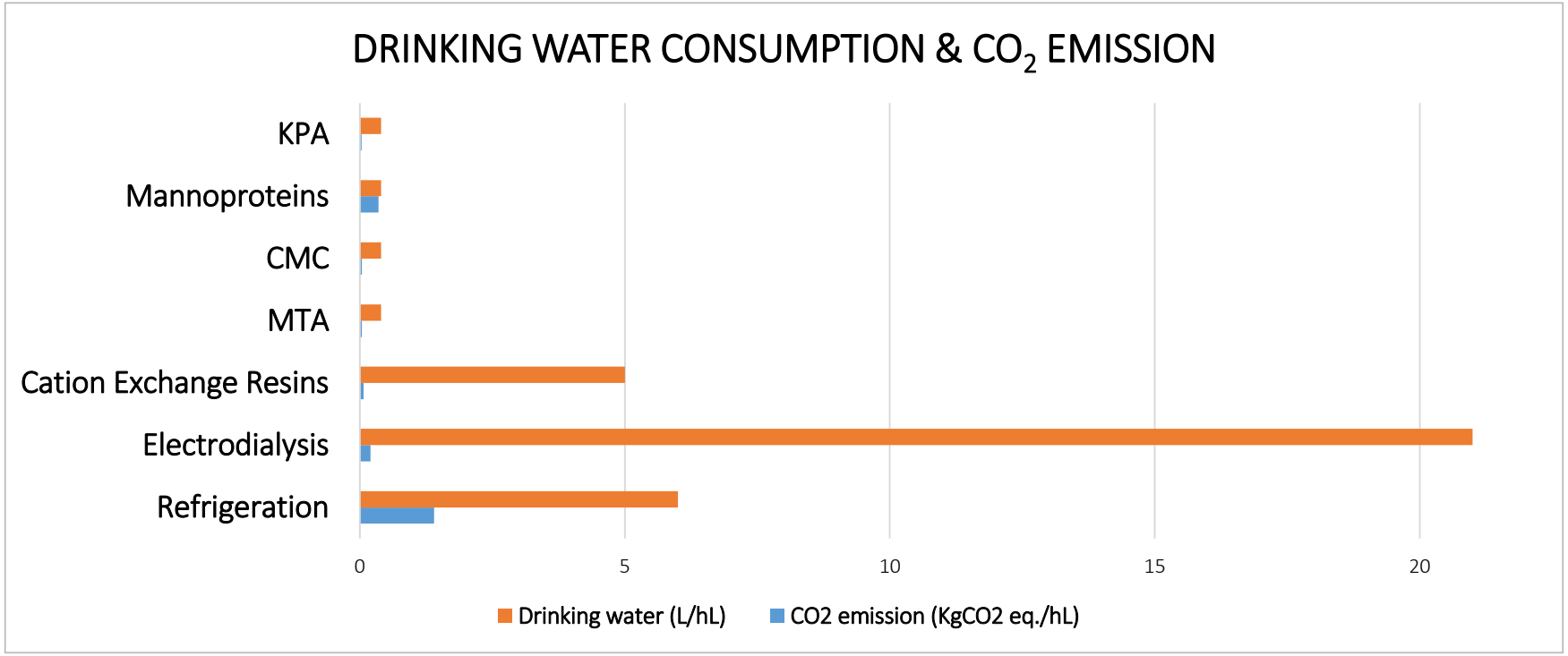


%Δ eq. = 26 %



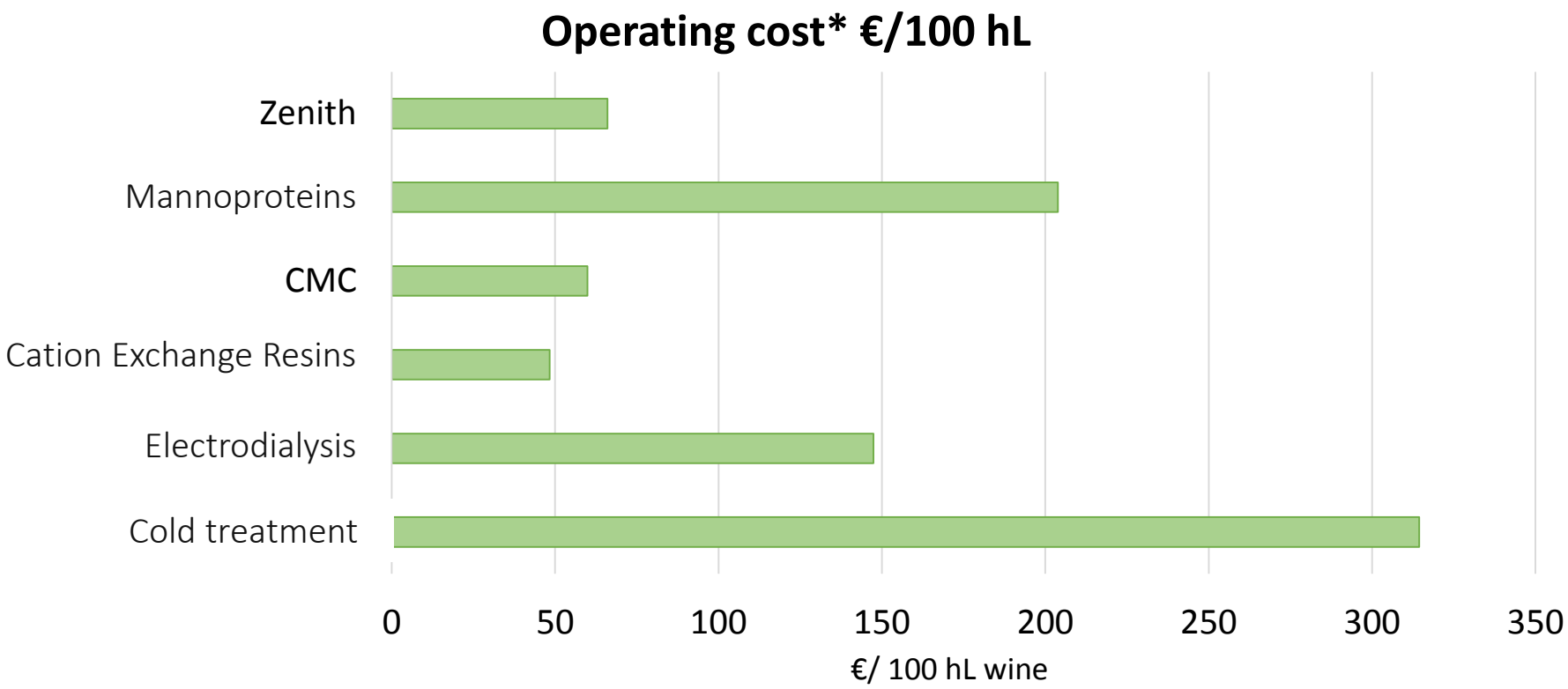
	ΔµS	Stability level
WHITE WINES	≤ 30	very stable
	30 - 50	stable
	50 - 70	at risk
	> 70	unstable

COMPARING THE METHODS: SUSTAINABILITY



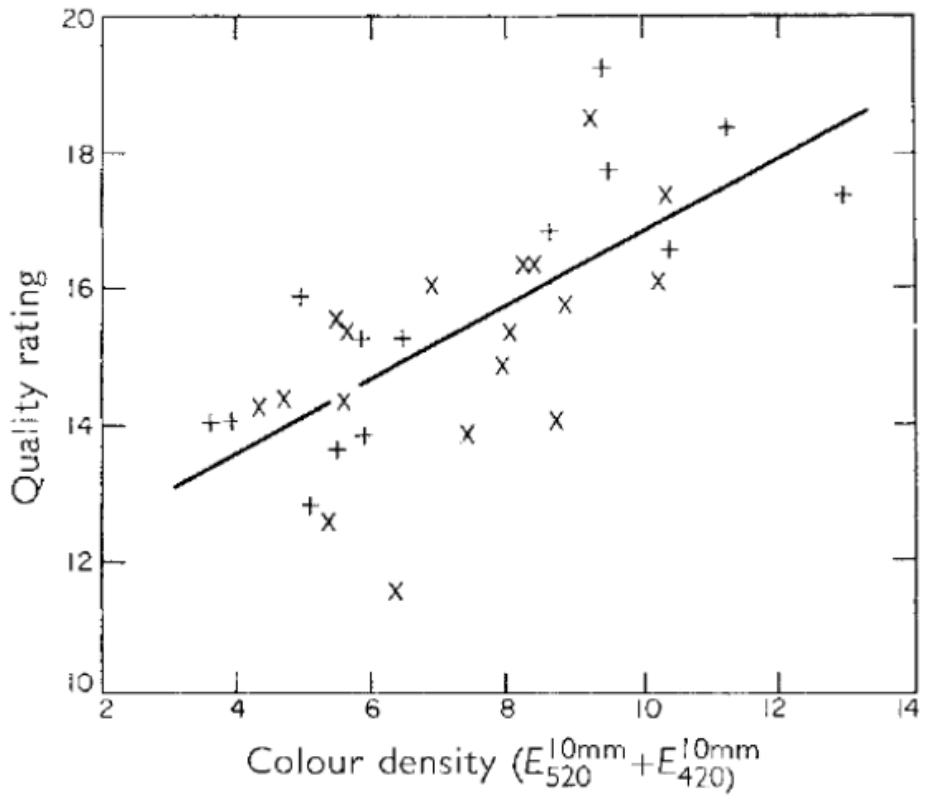
StabiWine data, average of 90 european wineries

COMPARING THE METHODS:COST



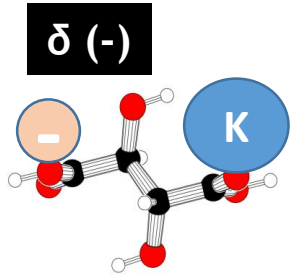
*includes energy, water, hygien products, additives, labour (data StabiWine)

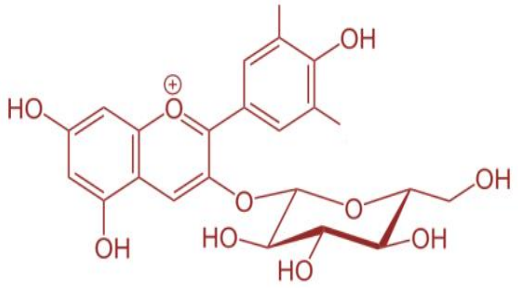
IMPORTANCE OF COLOR STABILITY

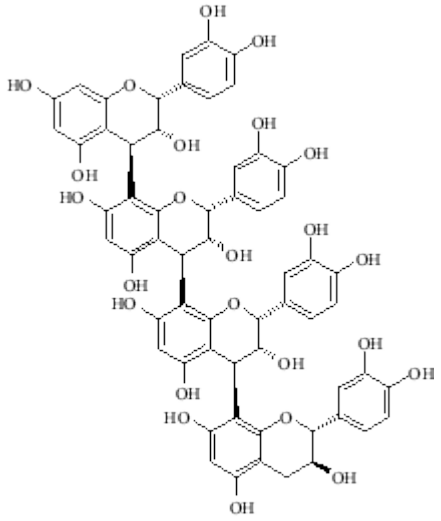


Somers and Evans (1974)

COLOR STABILITY: A BIT MORE COMPLEX







WINE COLOR STABILITY

What factors affect bottled color stability?

Consider:

- Time
- Temperature
- Quick to market red wines = short/aging stabilization period
- Last minute blending
- Very highly colored/ phenolic red wines

COLOR STABILITY STRATEGIES

STABILIZE COLOR

PROACTIVE FERMENTATION/MATURATION

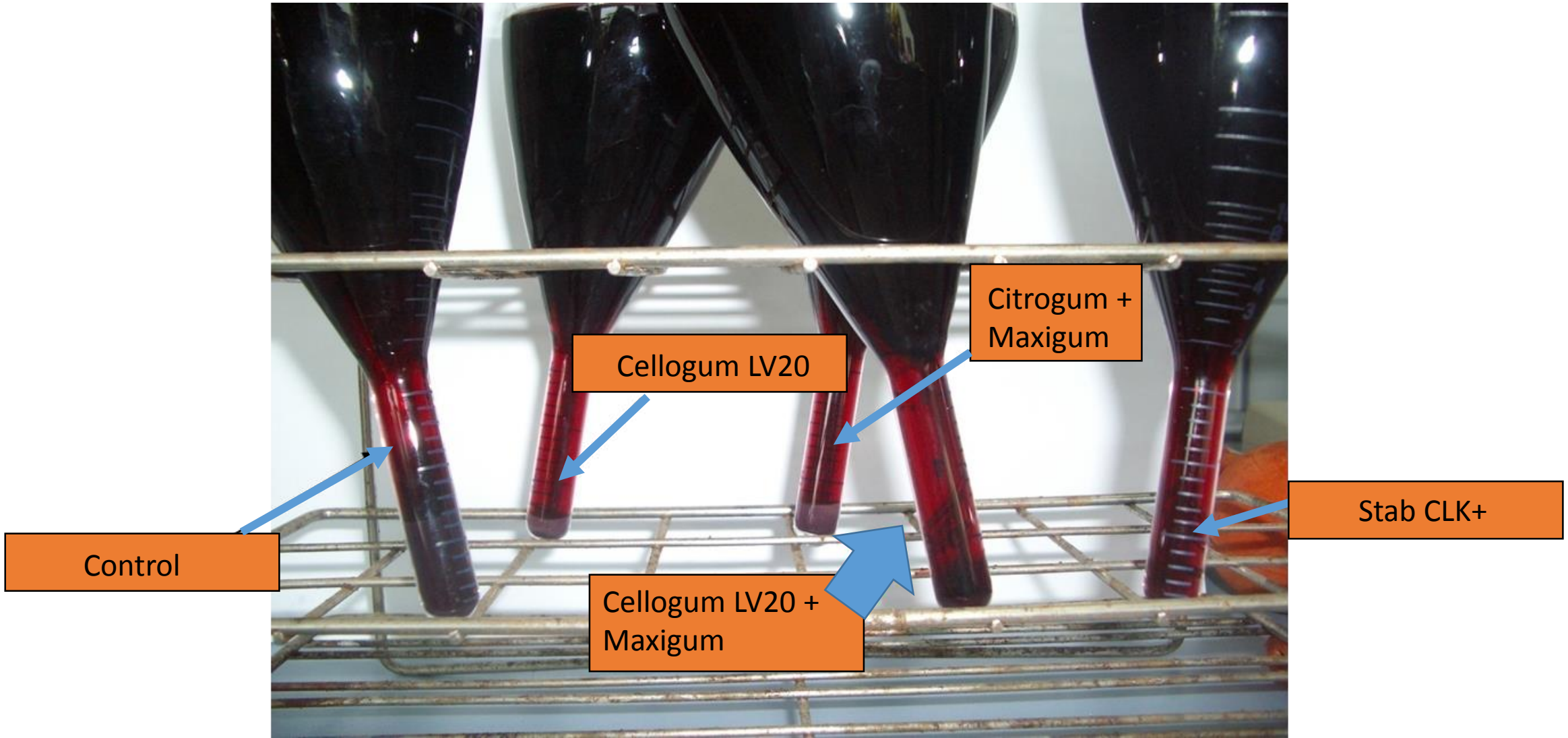
GUM ARABIC or MANNOPROTEINS

REMOVE UNSTABLE COLOR

BENTONITE

CHILLING

COLOR STABILITY: COLOR AND TARTRATES



USING ZENITH COLOR FOR STABILITY

ΔμS/cm = 89

Color intensity reduction: 9.6%

Test 6 days -4° C

STABLE

KPA and FILTERABLE Verek Gum Arabic

THANK YOU FOR YOUR PARTICIPATION!

- Thank you for your participation!
- Please fill out our survey!
- Useful downloads
- *More useful info and webinar videos @ http://www.enartis.com/us/focus-on*
- Now, 20 minute Q&A!

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