



OxiKan CL

**FRESH AND
HEALTHY
FOOD FOR A
LONGER TIME**

SHELF-LIFE ENHANCEMENT WITH ROSEMARY, THE NATURAL ANTI-OXIDANT.

Good, tasty food has followers across the globe. However the quality of food deteriorates with the passage of time, affecting the taste, aroma and texture of food. Consumption of deteriorated food also causes serious health risks. Anti-oxidants are substances that prolong the shelf-life of food by delaying the oxidation process.

Rosemary extract has been the most dominant natural anti-oxidant in the world due to its familiarity and acceptance as a common culinary ingredient among consumers.

Some of the challenges posed by rosemary anti-oxidants are:



Lower potency in applications

Impact on colour, flavour and aroma of the product.

OxiKan CL - A BREAKTHROUGH IN NATURAL ANTI-OXIDANTS

Kancor's R & D team tried to understand customer requirements and performed application studies to test the solutions for oxidation management problems. Thus in 2008, OxiKan, a range of natural anti-oxidants extracted from the finest rosemary was developed.

OxiKan resolves the problems of using rosemary as a natural anti-oxidant with:

Higher Efficacy

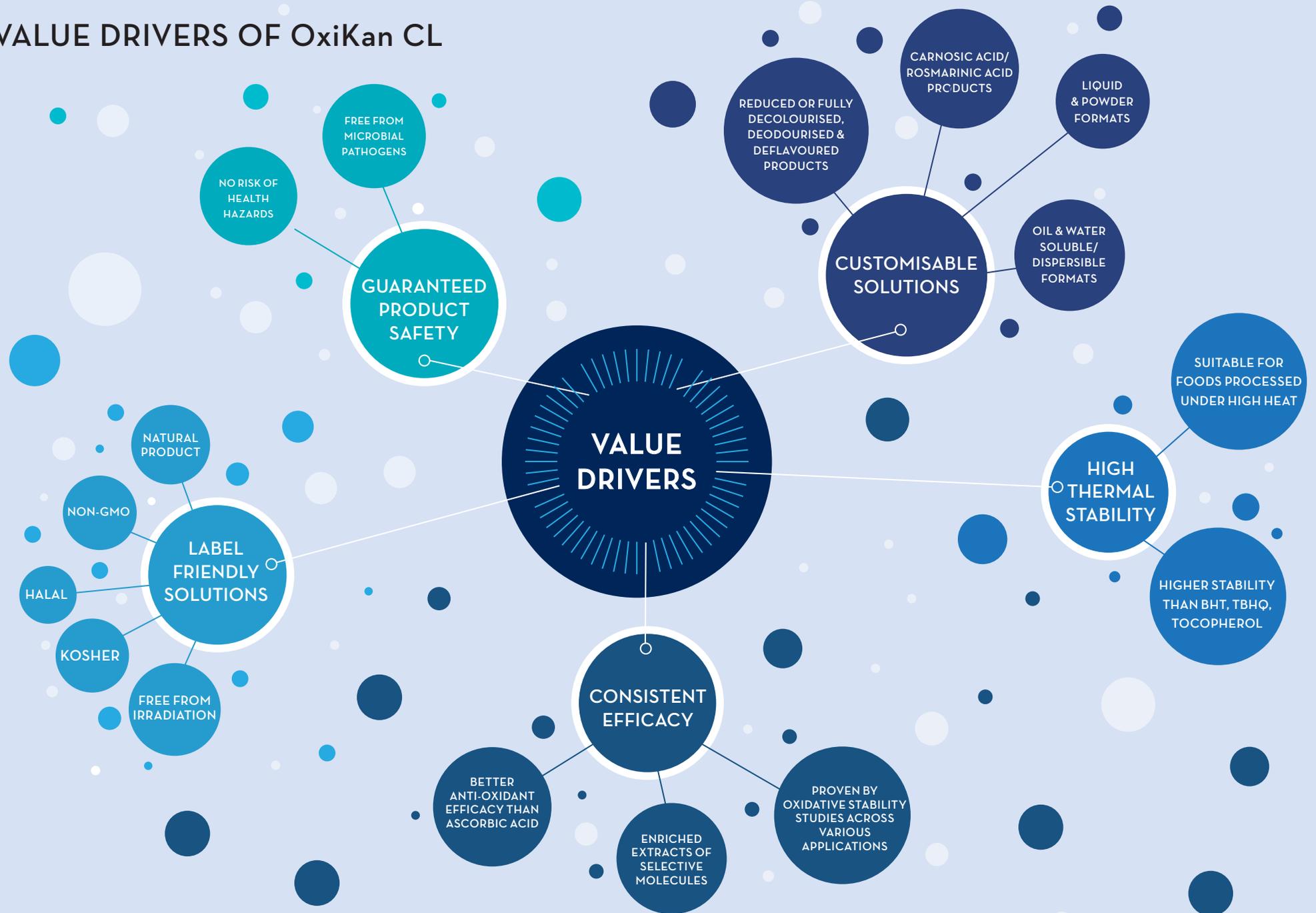
More effective than synthetic anti-oxidants at a fraction of its dosage

Higher Threshold

Can be dosed at maximum allowable limits without impacting colour, odour or flavour of food matrix.

OxiKan CL developed by Kancor Ingredients is a major breakthrough in natural anti-oxidants. Being a highly refined, completely decolourised, deodourised and deflavoured extract of rosemary, it does not impart any flavour, aroma and colour to the end application. It consists of selective non-polar anti-oxidant molecules which makes it ideal for applications that are sensitive to aroma, colour and flavour like speciality fats, omega 3 fortified products and beverages. The absence of unwanted molecules such as chlorophyll, carotenoids, xanthophylls and other less oil soluble non anti-oxidant molecules make OxiKan CL stand out from the rest.

VALUE DRIVERS OF OxiKan CL





COMPARATIVE STUDY ON
SHELF-LIFE ENHANCEMENT
OF POPCORN USING OxiKan CL,
NATURAL TOCOPHEROL & TBHQ

Objective: To compare the impact of OxiKan CL with Natural Tocopherol and TBHQ in the oxidative stability of popcorn.

Method: 250g of Canola Oil was separated into 5 equal portions and 4 portions were dosed with different anti-oxidants - two samples were dosed with different levels of OxiKan CL, one sample was dosed with Natural mixed tocopherol and one sample with synthetic TBHQ. One portion was maintained as control.

Dosages:

Anti-oxidant	Dosage in ppm
OxiKan CL	Equivalent to 80 ppm Carnosic Acid
OxiKan CL	Equivalent to 200 ppm Carnosic Acid
Mixed Tocopherol (Natural)	Equivalent to 200 ppm Tocopherol
TBHQ (Synthetic)	Equivalent to 200 ppm TBHQ

* OxiKan CL with 4.7% CA at dosage of 0.42 % is equal to 200 ppm of Carnosic acid, and at 0.17% dosage is equal to 80 ppm of Carnosic Acid.

Preparation of Popcorn:

Popcorn was prepared using Corn (100g), Canola Oil (50g) and Salt (2.5g). The ingredients were heated for 3-4 minutes. The popped corn was then packaged in polythene bags and labelled accordingly.

Extraction of Fat from Popcorn:

The fat contained in the popcorn was extracted by Soxhlet extraction method, using hexane as solvent at 80°C temperature over 5 hours' time. Solvent from the extraction was concentrated in a rotavapour under reduced atmospheric pressure, then stripped and purged with Nitrogen to ensure the fat is solvent free. The fat thus extracted was used for the oxidative stability studies.

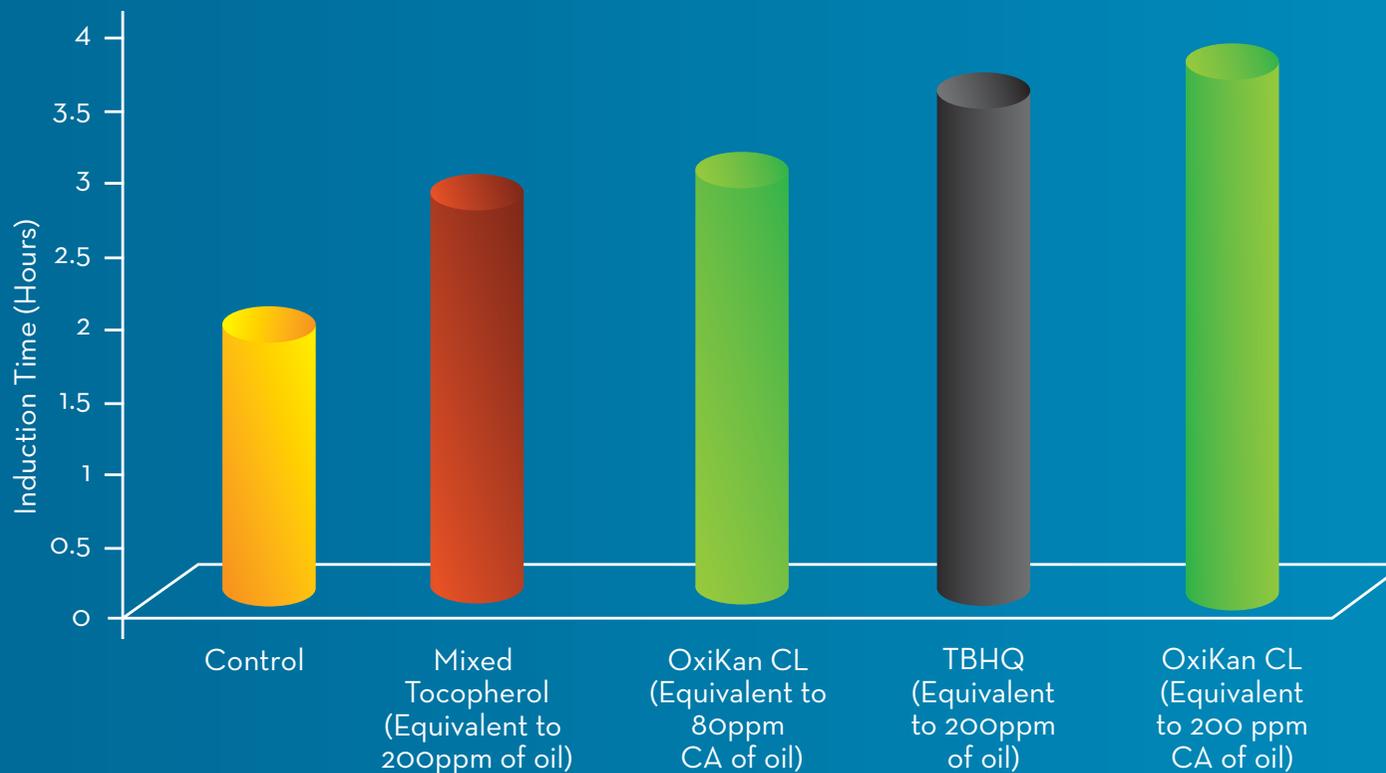
Result:

Oxidative stability study of the extracted fat from popcorn was conducted using Rancimat Induction Time Analysis. It is a method by which the oxidative stability of fat can be determined. The time period between relatively slow reactions before it speeds up is called the induction time. The longer the induction time, more stable the fat.

Conditions:

Air Flow: 20 Ltr/Hr Temperature: 120°C

Sample	Induction Time (in hours)	Indicative shelf life in days under Accelerated conditions
Control	2.21	47
Mixed Tocopherol (Equivalent to 200 ppm of oil)	3.33	71
OxiKan CL (Equivalent to 80 ppm CA of oil)	3.48	74
TBHQ (Equivalent to 200 ppm of oil)	3.73	80
OxiKan CL (Equivalent to 200 ppm CA of oil)	3.82	81



Inference:

From the study it is evident that OxiKan CL, Kancor's fully decolourised, deodourised and deflavoured liquid extract of selective anti-oxidant molecules of rosemary, is more potent than other natural and synthetic antioxidants in the shelf-life extension of packaged foods. It is an ideal anti-oxidant for sensitive food matrices such as popcorn, omega oils etc. as it is highly refined to the extent of being colourless, odourless and flavourless.

A clear glass filled with a yellow liquid, likely MCT oil, is the central focus. The glass is set against a white background. Behind the glass, several sprigs of fresh rosemary are arranged, with some leaves overlapping the glass. The lighting is bright and even, highlighting the clarity of the liquid and the texture of the rosemary. The overall composition is clean and professional, typical of a scientific or health-related presentation.

COLOUR IMPACT STUDY ON
ADDITION OF ANTI-OXIDANTS
IN MCT (MEDIUM CHAIN
TRIGLYCERIDE)

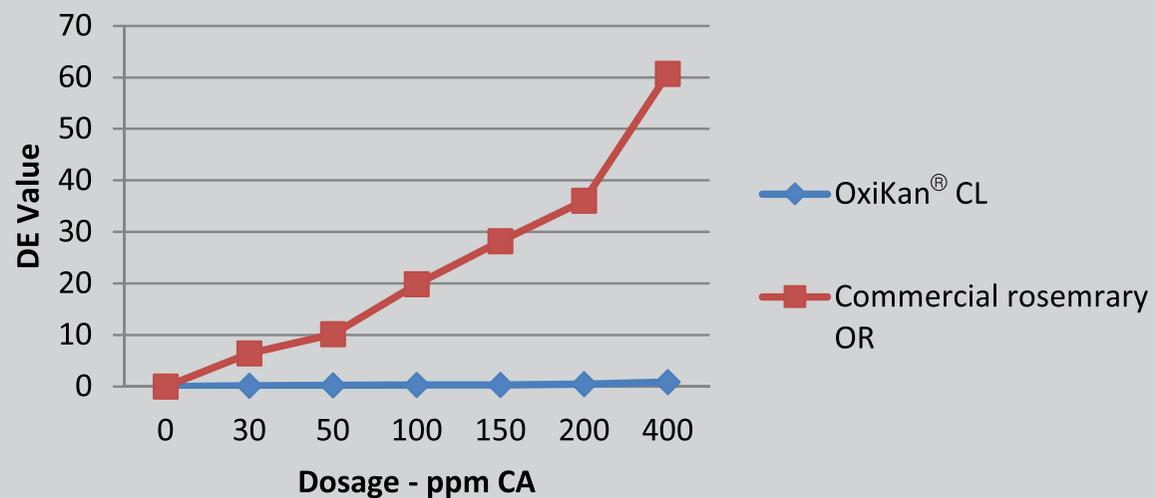
Objective: Compare the colour impact of Oxikan CL and commercial rosemary extract in oil.

Measurement: Deviation from original colour of oil on addition Oxikan CL and Commercial Rosemary at various dosages measured by Xrite Colourimeter, expressed in delta E (difference in LAB value)

Dosage (ppm, CA*)	OxiKan CL DE Value	Commercial Rosemary OR** DE value
0	0	0
30	0.12	6.39
50	0.24	10.12
100	0.29	19.83
150	0.31	28.14
200	0.42	36.05
400	0.82	60.66

*CA - Carnosic acid **OR - Oleoresin

Comparison of colour imparted in application





**OxiKan CL on MCT
(medium chain triglyceride)**

OxiKan CL 4.0 % CA at 1% dosage
is equivalent to 400ppm CA



Control



**Commercial Rosemary OR
on MCT (medium chain triglyceride)**

Commercial Rosemary 4.0 % CA at
1% Dosage is equivalent to 400ppm CA

Dosage (Carnosic acid in ppm)	DE values OxiKan CL	Commercial Rosemary OR
400	0.82	60.66

Carnosic acid is one of the major anti-oxidant molecules in rosemary extracts

INFERENCE:

OxiKan CL shows a DE value of only 0.82, even at a dosage of 400 ppm. DE value upto 2 is not visible to the naked eye. Rosemary extract at 400 pm showed a DE value of 60.66 and imparted a strong yellowish colour to the clear MCT.

Creating the finest of ingredient solutions

Kancor Ingredients Limited is a pioneer in the field of Global Spice Extraction, whose roots in the spice trade can be traced back to 1857 at the spice capital of the world; Cochin. Partnering with V Mane Fils, France; one of the largest Flavour and Fragrance companies in the world, Kancor specialises in complete food ingredient solutions right from sourcing of raw materials, extraction, research, formulation testing and final delivery.

Kancor's Food Safety Management System is based on FSSC-22000 (Food Safety System Certification), a GFSI (Global Food Safety Initiative) benchmarked standard. All facilities are FSSC-22000 certified. Kancor has partnered with SEDEX and has also implemented GMP in all its manufacturing units. The company has been certified with ISO-9001, FSSC-22000, ISO 22000, HACCP, ISO 14001, BS OHSAS 18001 and ISO 50001 by BSI.

Product range includes Oleoresins, Essential Oils & Isolates, Mint, Menthol and Isolates, Floral Extracts, Natural Anti-oxidants, Natural Colours, Supercritical Co2 extracts, Delivery platforms, Culinary platforms, Organic ingredients.



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APPENDIX



OxiKan CL was recognized by the **IFT Food Expo Innovation Award 2018** for providing a highly refined and effective anti-oxidant solution for sensitive food applications like popcorn, nuts, omega 3 products, specialty fats etc.



OxiKan CLS was recognised by the **World Beverage Innovation Award 2016 at Brau Beviale** for providing an effective natural anti-oxidant solution for beverage applications with zero impact on its organoleptic profile.