



AquaROX™ 10

**A new generation
of unique natural
ORAC booster
for clear, hot filled
beverages**

AquaROX™ 10 is a unique natural water soluble extract from rosemary leaves (*Rosmarinus officinalis*) standardized to 10 % rosmarinic acid. Unlike green tea extracts known to be heat unstable, AquaROX™ 10 is suitable for clear, hot filled beverages, as it maintains its ORAC activity even at high processing temperatures.

AquaROX™ 10 also differentiates itself from traditional rosemary extracts available on the market, which are not suitable for beverage applications due to their undesirable taste, flavor and color contribution to the final product.



Rosmarinic acid

Among various plant phenolics, rosmarinic acid is an important caffeoyl ester with proven medicinal properties and well characterized physiological functions. Rosmarinic acid is found in substantial quantities in the family Labiatae with medicinal uses in several cultures.

The pharmacological properties of rosmarinic acid are to be antioxidant, antibacterial, antiviral and anti-inflammatory. These properties make rosmarinic acid interesting for food, cosmetic and pharmaceutical applications.

Health benefits associated with rosmarinic acid

- » High potent antioxidant body protection.
- » Antidepressant and antistress activity.
- » Sleep promotion ability.
- » Protection of human skin against the harmful effects of UV radiation.
- » Inhibition of micro vascular injuries.
- » Great blood flowability, stimulation of micro circulation and hair growth.
- » Help in gingivitis inhibition.
- » Anti-inflammatory and antiviral activity in application as nutritional supplement.
- » Great absorption from the gastrointestinal tract and from the skin.

AquaROX™ 10 features

- » Available as white to light beige powder or light yellow clear liquid.
- » Fully water soluble at virtually any temperature.
- » Does not change appearance/turbidity/organoleptics of drinks and beverages, including flavoured waters, even at concentrations of 300 ppm.
- » Stable in aqueous solutions even when exposed to light, heat and oxygen.
- » Maintains high ORAC activity and stability even when exposed to sterilization temperatures.
- » Suitable for hot filled and UHT drinks and beverages.

The advantages of AquaROX™ 10 over green tea extract often used in beverage industry

	AquaROX™ 10	Green tea extract
Product description	Rosemary extract	Green tea extract
Appearance	White to light beige powder or light yellow liquid.	Brown powder
Rosmarinic acid content	Min. 10 %	NA (EGCG up to 50 %)
Solubility in water	Fully soluble. No change of turbidity/appearance/organoleptics even at dosage of 0,03 %.	Soluble, precipitation in time observed. Change of turbidity/appearance/organoleptics even at low dosages.
Application in colorless drinks/beverages/flavoured waters	Suitable. No change of turbidity/appearance/organoleptics even at dosage of 0,03 %.	Not suitable. Change of turbidity/appearance/organoleptics even at low dosages.
Colored drinks/beverages/juices	Suitable. No change of turbidity/appearance/organoleptics even at dosage of 0,03 %.	Suitable only for ice tea type applications and herbal drinks. Otherwise change of turbidity/appearance/organoleptics even at low dosages.
Hot filling suitability	Suitable. No change of turbidity/appearance/organoleptics even at dosage of 0,03 %.	Not suitable.
Dosage in the final application	Up to 10-times higher (based on active ingredient) compared to regular products.	Limited due to color and taste influence.

Note: A benchmarking study shows that the best quality water soluble rosemary extracts available on the market cannot be successfully used in beverage applications, due to their undesirable effect on taste, flavour and color.



Figure 1: AquaROX™ 10 heat stability

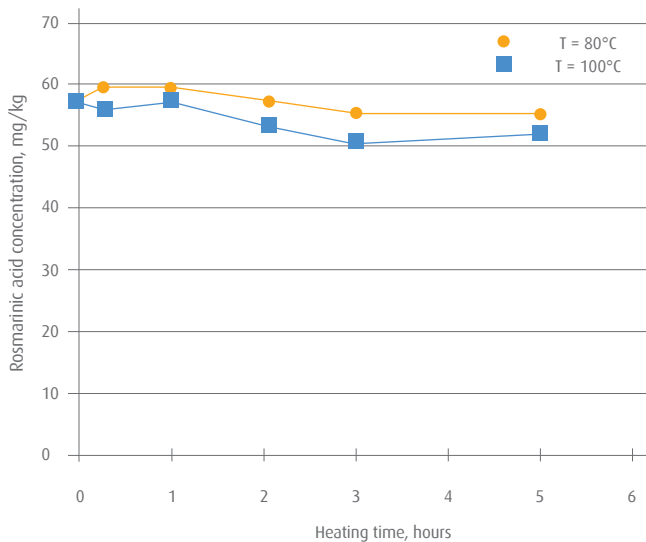
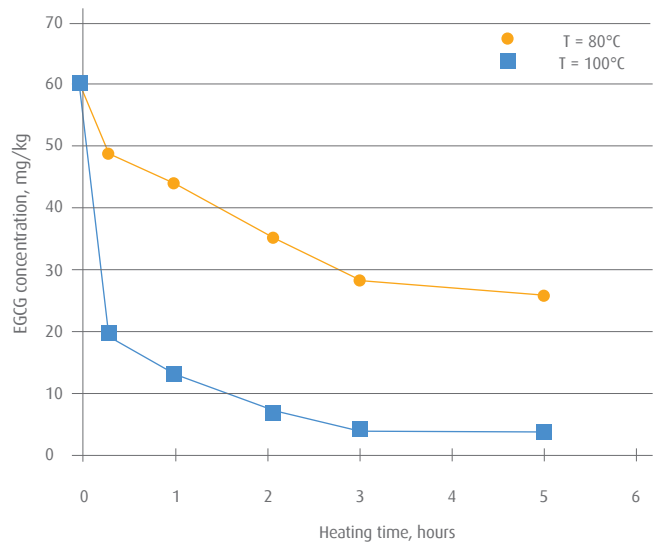


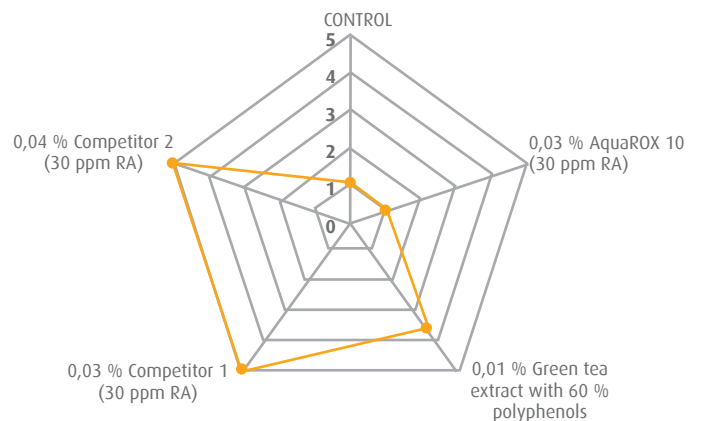
Figure 2: Green tea heat stability



Dosage and daily intake of AquaROX™ 10

Recommended dosage of AquaROX™ 10 is 0,03 % on total product weight, providing 0,03 g of rosmarinic acid or more than 1000 ORAC. This is equal to 2 g of rosemary dried leaf containing 1,5 % of rosmarinic acid, which is considered to provide health benefits.

Figure 3: Taste profile of AquaROX™ 10 in comparison to control (pure water), green tea extract and best quality water soluble rosemary extracts available on the market





FOOD PROTECTION



Vitiva

Nova vas pri Markovcih 98
2281 Markovci
Slovenia

tel: +386 2 7888 738
fax: +386 2 7888 731
e-mail: foodprotection@frutarom.com

www.vitiva.eu