

GreenArt

Plant part: Leaf

Scientific name: *Cynara scolymus*

INCI name: Cyanara Scolymus Leaf Extract

IECIC 2015 name: CYNARA SCOLYSUS LEAF EXTRACT



GreenArt

Product Name: GreenArt

Plant Name: Artichoke

Cynara scolymus, commonly known as artichoke, is an edible perennial plant that originated from the Mediterranean region and is widely cultivated for food around the world.

This vegetable grows to 1.4–2 m tall and develops a large edible bud with individual purple florets.



Harvesting Artichoke

Our artichoke is organically grown and harvested from an established organic Scottish farm.

The farmers are always looking for ways to achieve sustainability and produce as little waste as possible, in line with our company values.



Artichoke

Artichoke has been used as a food throughout the Mediterranean, northern parts of Europe and parts of Asia, where it is used as a tea in Vietnam.

It is one of the oldest medicinal plants and is used as a digestive aid and to enhance gall bladder function. High levels of polyphenols, such as caffeic acid derivatives and flavonoids, are found in artichoke. Leaf extracts have demonstrated antioxidant activities in vitro and in vivo by oral administration. Caffeoylquinic acid, chlorogenic acid and luteolin-7-O-glucoside were identified as major active components. These phenolic compounds have been found to inhibit bacterial and fungal growth.

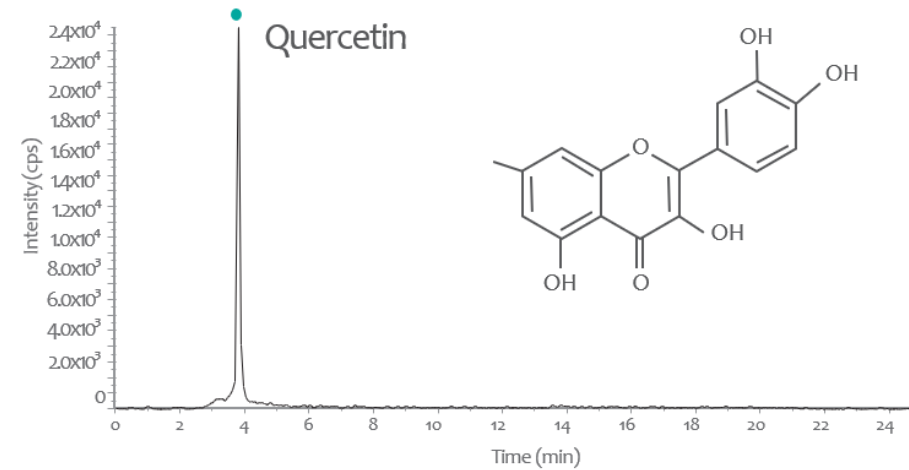
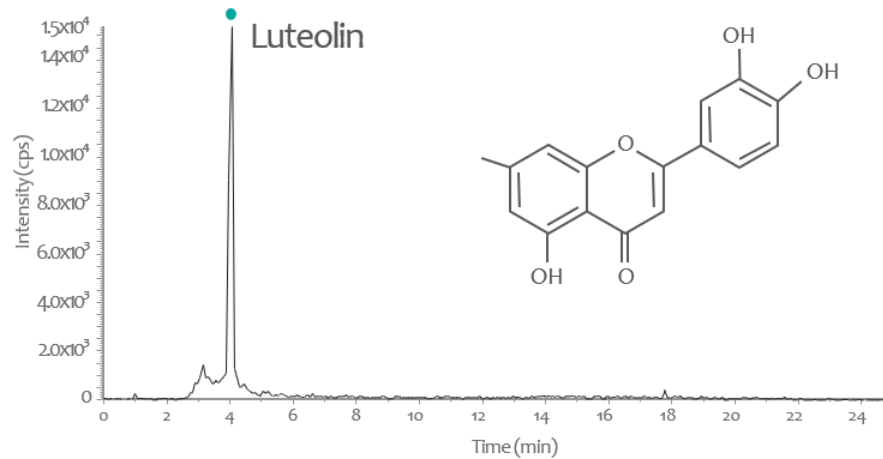
[1] Investigation of the *in vivo* antioxidative activity of *Cynara scolymus* (artichoke) leaf extract in the streptozotocin-induced diabetic rat, Magielse *et al.*, Mol Nutr Food Res, 2014, 58(1), p.211-215

[2] In vitro antioxidant activities of edible artichoke (*Cynara scolymus* L.) and effect on biomarkers of antioxidants in rats, Jimenez-Escrig *et al* J Agric Food Chem, 2003, 51(18), p.5540-5545

[3] Phenolic compounds from the leaf extract of artichoke (*Cynara scolymus* L.) and their antimicrobial activities, Zhu *et al.*, J Agric Food Chem, 2004, 2004, 52(24), p. 7272-7278

Flavonoids found in GreenArt

LC-MS/MS Analysis



- Quercetin and luteolin are two compounds detected in GreenArt. These both have been found to have anti-inflammatory effects *in vivo* and *in vitro*, as well as strong antioxidant and antimicrobial properties.

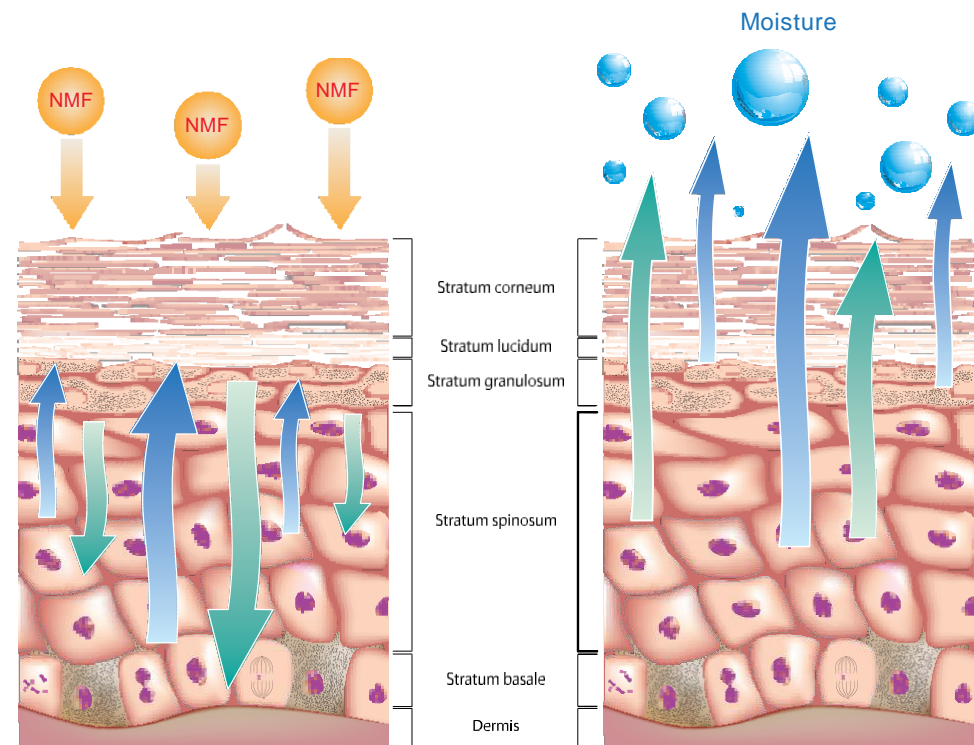
[4] Aziz, N., Kim, M. and Cho, J. (2018). Anti-inflammatory effects of luteolin: A review of in vitro, in vivo, and in silico studies. *Journal of Ethnopharmacology*, 225, pp.342-358.

[5] Li, Y., Yao, J., Han, C., Yang, J., Chaudhry, M., Wang, S., Liu, H. and Yin, Y. (2016). Quercetin, Inflammation and Immunity. *Nutrients*, 8(3), p.167.

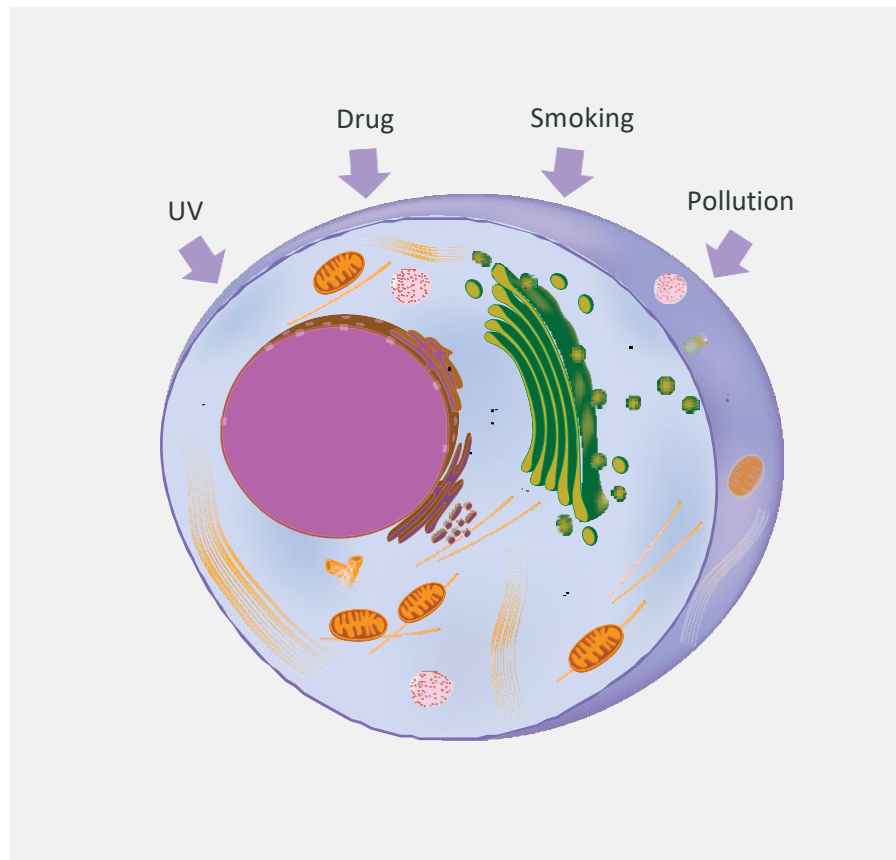
[6] Wang, S., Yao, J., Zhou, B., Yang, J., Chaudry, M., Wang, M., Xiao, F., Li, Y. and Yin, W. (2018). Bacteriostatic Effect of Quercetin as an Antibiotic Alternative In Vivo and Its Antibacterial Mechanism In Vitro. *Journal of Food Protection*, 81(1), pp.68-78.

Skin Structure

The retention of water in the Stratum corneum (SC) is dependent on two major components: (1) the presence of natural hygroscopic agents within the corneocytes (collectively referred to as natural moisturizing factor) and (2) the SC intercellular lipids orderly arranged to form a barrier to transepidermal water loss (TEWL). The water content of the SC is necessary for proper SC maturation and skin desquamation. Increased TEWL impairs enzymatic functions required for normal desquamation resulting in the visible appearance of dry, flaky skin.



Antioxidants



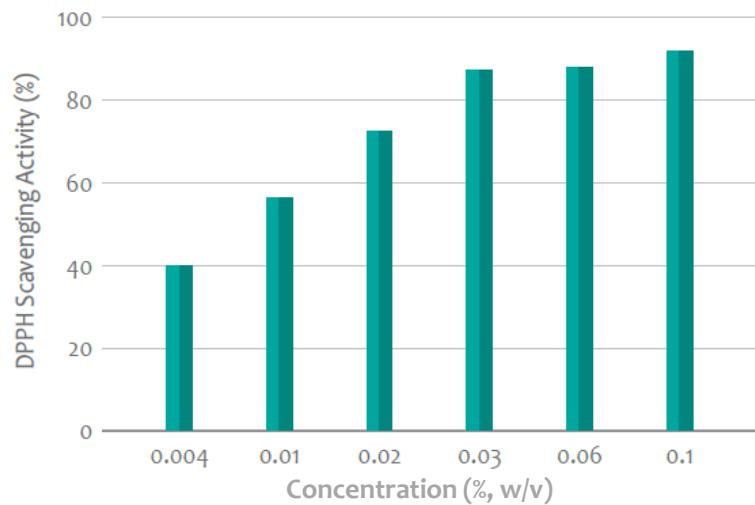
Why are they important?

Our skin is under attack from many factors in daily life, such as UV, pollution and smoking. These factors increase the Reactive Oxygen Species (ROS).

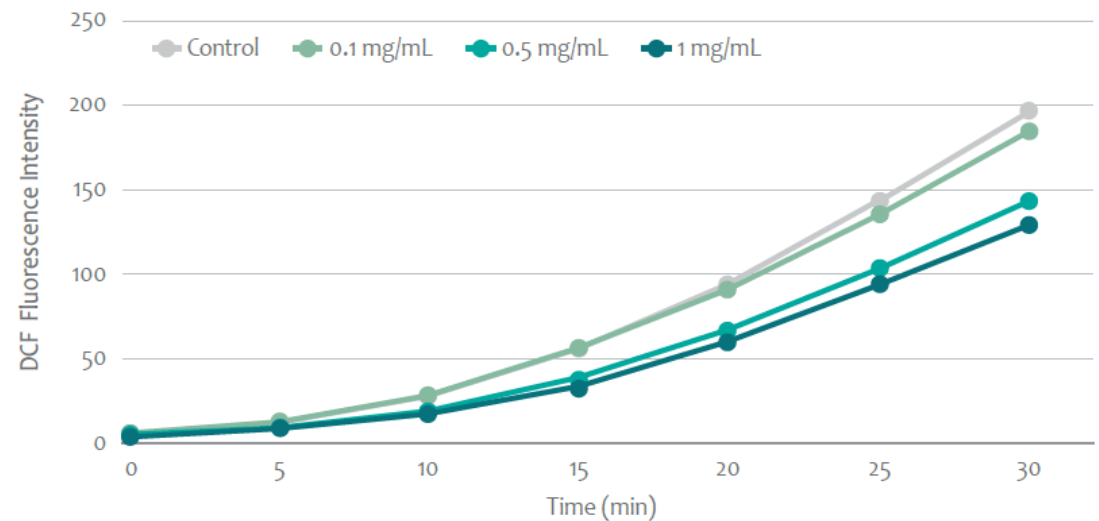
Antioxidants from Artichoke Leaf Extract can inhibit the generation of ROS and in turn inhibit cellular damage.

Antioxidant Effects of GreenArt (*in vitro*)

Radical Scavenging Activity

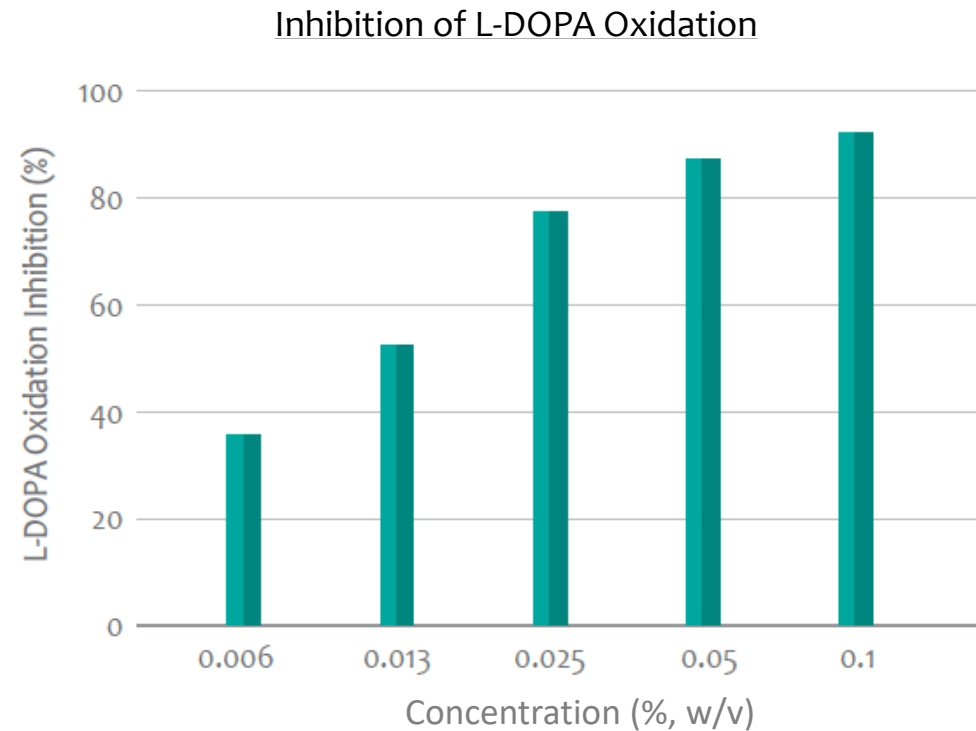


ROS Inhibition Activity



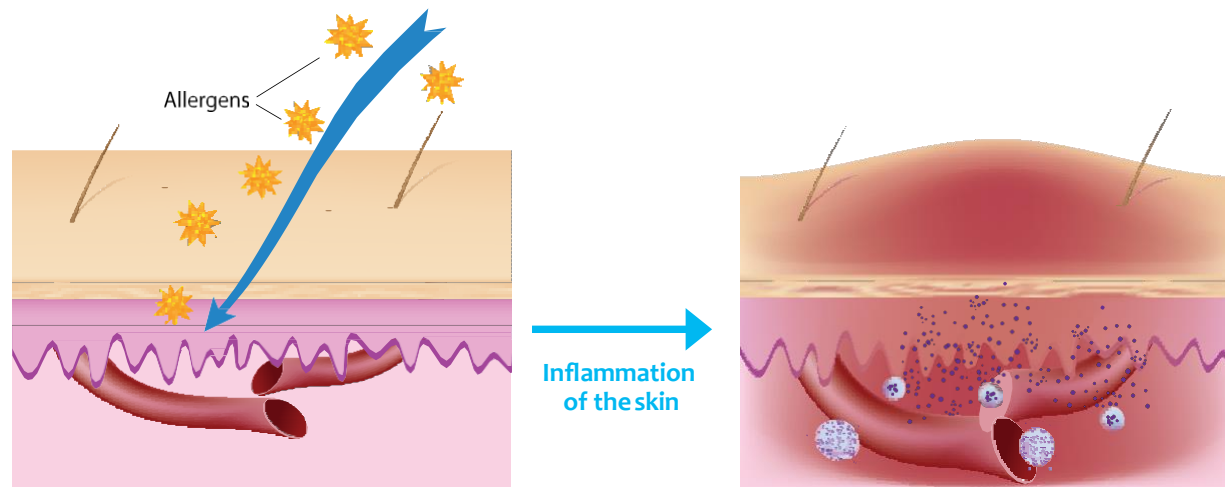
Our skin is under attack from many factors in daily life, such as UV, pollution and smoking. These factors increase the Reactive Oxygen Species (ROS). **Antioxidants from GreenArt can inhibit the generation of ROS** and in turn inhibit cellular damage.

Skin Brightening Effect of GreenArt (*in vitro*)



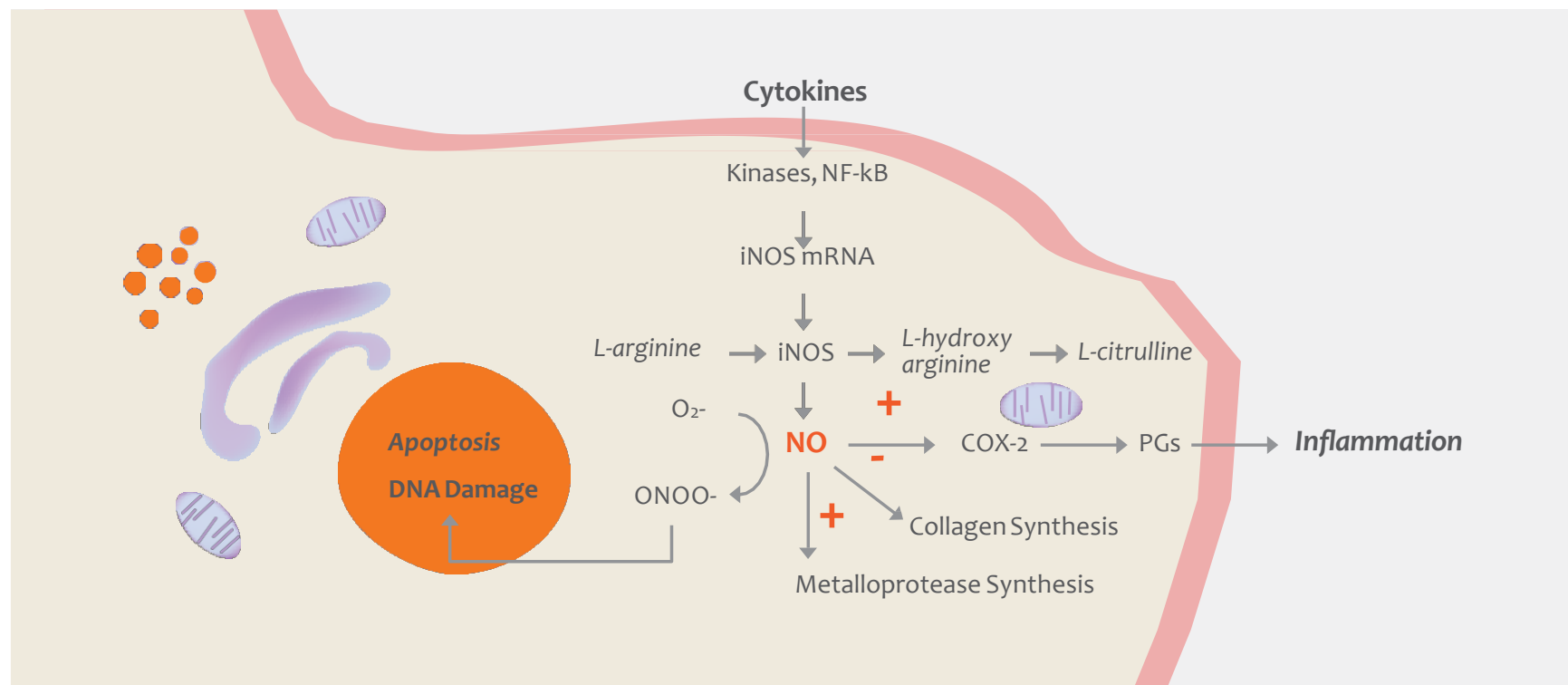
Results show that there was a significant **increase in the inhibition of L-DOPA oxidation**, in a concentration-dependent manner.

What is Inflammation?

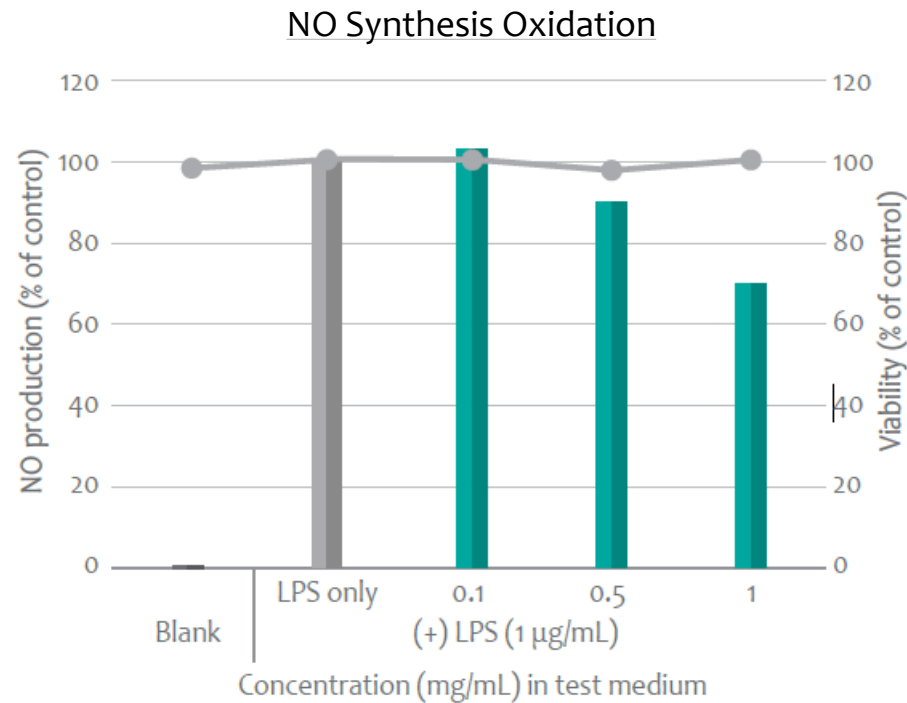


Inflammation is part of the complex biological responses to wide range of harmful stimuli including injury, tissue necrosis, infection, and irritants. The purpose of inflammation is to destroy (or contain) the damaging agent, initiate repair processes and return the damaged tissue to useful function. The symptoms of inflammation are redness, swelling, heat, and pain, which are caused by increased blood flow into tissue. The immune system is responsible of protecting our body from the harmful stimuli and of maintaining homeostasis. Disorders of the immune system can result in autoimmune diseases, inflammatory diseases, and cancer. In an attempt to protect the body, the immune system might overreact to the stimuli, and this might cause allergy or inflammatory reactions.

Inflammation Mechanism



Anti-inflammatory Effect of GreenArt (*in vitro*)



As the concentration of GreenArt increases, nitric oxide (NO), an inflammatory molecule decreases.

Reported functions

Ingredient : CYNARA SCOLYMUS LEAF EXTRACT

INCI Name	CYNARA SCOLYMUS LEAF EXTRACT
Description	Cynara Scolymus Leaf Extract is an extract of the leaves of the Artichoke, Cynara scolymus L., Compositae
INN Name	
Ph. Eur. Name	
CAS #	84012-14-6
EC #	281-659-3
Chemical/IUPAC Name	
Cosmetic Restriction	
Other Restriction(s)	
Functions	<ul style="list-style-type: none"> • SKIN CONDITIONING
SCCS opinions	
Identified INGREDIENTS or substances e.g.	

Source: European Commission [http://ec.europa.eu/growth/tools-databases/cosing/index.cfm?fuseaction=search.details_v2&id=55563]

Product Information

Product Name : GreenArt


INCI name : Cynara Scolymus Leaf Extract
(China Compliant)

Dosage : 1 – 3%

Formulation : Add to the formulation
when the temperature is lower than 55°C.
Recommended to add after the cooling process.

Storage : Avoid direct light or UV.
Keep it in a cool and dry area.





The Secrets of Caledonia

The Secrets of Caledonia (TSOC) is a supplier of natural cosmetic ingredients inspired by Scottish traditional herbal medicine. Taking advantage of Scotland's biodiversity and working in collaboration with established Scottish herbalists, we aim to provide the most effective and innovative natural ingredients at the highest quality.



Tel
0044 (0)131 629 9584



E-mail
marketing@tsocalledonia.co.uk



Address
8F Edgefield Rd Ind Est, Loanhead, EH20
9TB