

HYDRATING

Blueberry **NECTA**®

BLUE LIGHT DEFENCE | HYDRATING

Blueberry NECTA® is a powerful antioxidant that works as a natural shield against blue light. Thanks to its high fatty acid composition, it also supports skin's barrier function, resulting in hydrated and nourished skin.



BLUE LIGHT DEFENCE

BLUEBERRY NECTA® | PRODUCT OVERVIEW



Full Circle
UPCYCLED BEAUTY

Blueberry NECTA®

A POWERFUL ACTIVE FOR BLUE LIGHT DEFENCE,
MADE FROM 800,000* UPCYCLED BLUEBERRIES

Blueberry seed oils contain a particularly high omega-3-6-9 fatty acid profile, providing a natural method of protection against free radical damage. Oils high in oleic acid (omega-9) permeate skin layers without disordering other fatty acids and are therefore absorbed well by the skin.

In addition to providing a method of hydration and nourishment, Blueberry NECTA® has been proven to shield the skin against blue light exposure from digital devices. It also contains beta-carotene (pro-vitamin A), which can be linked to improving the visible signs of ageing and hyperpigmentation. *Based on 1kg oil.

BENEFITS

- Natural shield against blue light
- A natural source of pro-retinol (vitamin A)
- Contains a standardised level of carotenoids
- Natural defence against free radical damage
- An effective emollient, leaving skin feeling soft and hydrated
- Sustainably sourced and produced
- Transparent, low-carbon supply chain
- Prior to cold-pressing, the waste pulp is immediately frozen to preserve the fruit's vital nutrients

A NEW APPROACH

The blueberries used to make Blueberry NECTA® are a waste product of the juice production industry. The oil is extracted from the seeds of the waste pulp, which is upcycled into a luxurious, sustainable active oil.

No new materials created. No existing resources wasted.



INCI Name: Vaccinium Myrtillus Seed Oil (100%)

Plant Part: Seed

Country of Origin: Poland, Serbia, Canada, USA, Chile

Method of Extraction: Cold pressing

Appearance: Clear, light green liquid

Suggested Use Levels: 1 - 3%

Suggested Application: Skincare, body care

Natural: Conforms with ISO 16128

BDIH: Certifiable

Soil Association: Certifiable

Ecocert: Conforms (Natural)

Preservatives: None

Solvents Used: None

Water/Glycerine/MPG: Non-soluble

Ethanol: Miscible



BLUEBERRY NECTA® & CRUSH™ *upcycling* PROCESS



800,000 blueberries



PRODUCT 1

Blueberries are pressed into approx. **1.2T of juice**



This creates **500kg of leftover berry pulp** which would usually go to waste



The pulp is dried and the seeds are separated



PRODUCT 2

This process results in leftover blueberry skins (fibres) which are sold to the nutritional industry



PRODUCT 3

Oil is extracted from the seeds via cold pressing = **1kg Blueberry NECTA®**



This process results in waste seed cake. The seed cake goes through a colour stabilisation process before being dried & ground



PRODUCT 4

Finally, the material is sieved to size grade = **14kg Blueberry CRUSH™**

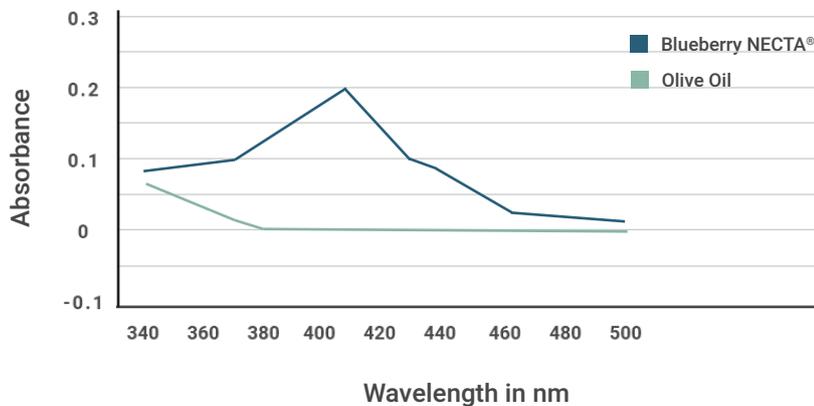


Blue Light DEFENCE

Blueberry NECTA® has been proven to absorb blue light, working as a natural shield against HEV exposure from the sun and digital devices.

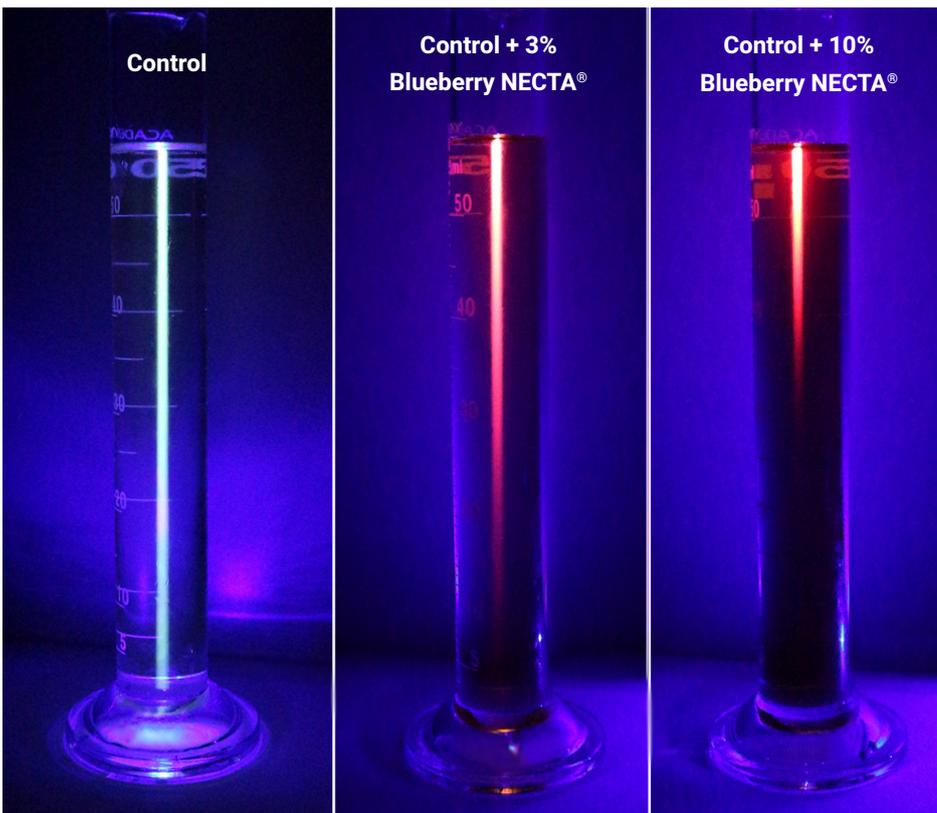
Figure 1. Blue light (HEV) absorbance

The graph represents the absorbance level using 2% Blueberry NECTA®



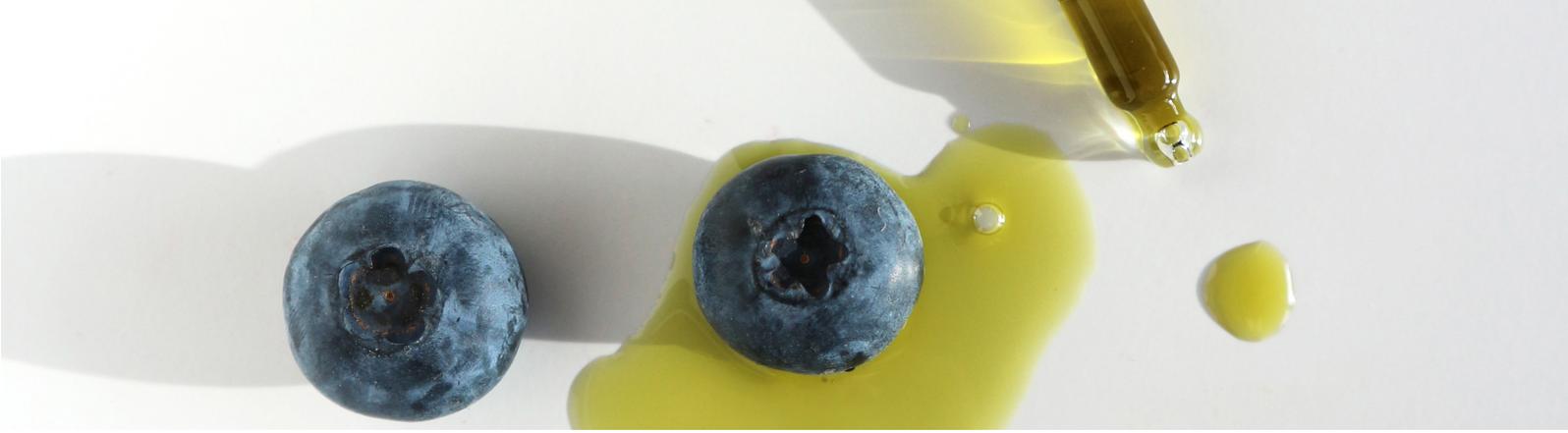
RESULTS

Blue light (HEV) has a wavelength of between approximately 380nm and 500nm; making it one of the shortest, highest-energy wavelengths. The peak at 410nm demonstrates the rate of HEV absorbance using 2% Blueberry NECTA®



BLUE LIGHT ABSORBANCE

When compared against a control, Blueberry NECTA® demonstrated significant absorbance activity.



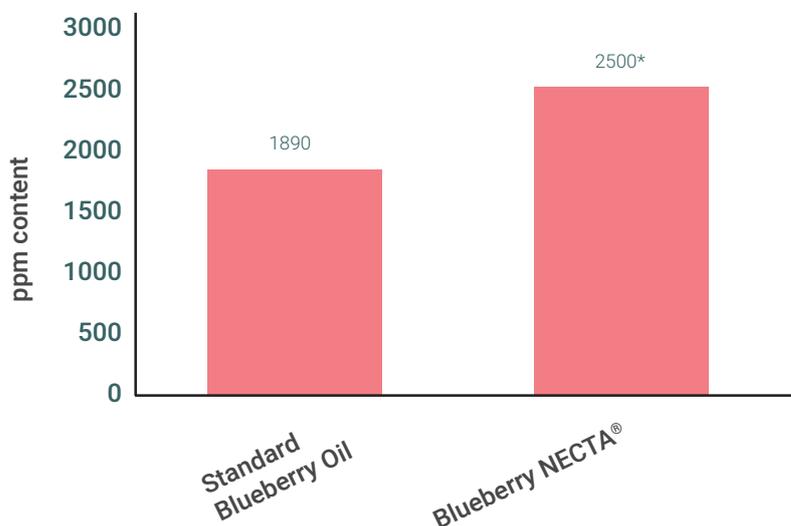
A NATURAL SOURCE OF *ProRetinol*

Blueberry NECTA® contains a standardised level of beta-carotene (pro-vitamin A) - a source of pro-retinol.

It contains **32% more carotenoids** than standard blueberry seed oil.

Topical retinoids in general have a well-documented effect on skin health including visible improvements in fine wrinkles, skin smoothness, and hyperpigmentation of photodamaged skin.¹

Figure 2. Carotenoid content (ppm)



Comparison of Blueberry NECTA® carotenoid content vs. standard blueberry seed oil.

*Average result based on four batches of Blueberry NECTA®

SKIN-BOOSTING *Sterols*

Phytosterols (referred to as plant sterol and stanol esters) are a group of naturally occurring compounds found in plant cell membranes. Phytosterol-based skincare products are known to deliver moisture to the skin, as well as softening, skin barrier strengthening, elasticity-boosting and soothing benefits.

Blueberry seed oil contains a higher level of sterol content compared with other well known seed oils derived from raspberry, strawberry, kiwi and blackberry.²

RICH IN *Fatty Acids*

Blueberry seed oil boasts a particularly high omega-3-6-9 essential fatty acid profile, delivering multiple benefits to the skin.



9

3

ALPHA-LINOLENIC ACID (OMEGA-3)

Cold-pressed blueberry seed oils have been shown to contain a high concentration of omega-3.³

- Omega-3 fatty acids help the skin retain moisture, regulate oil production, and maintain elasticity.
- Topical application of omega-3 fatty acids lessens UV-induced photodamage.

OLEIC ACID (OMEGA-9)

Blueberries have the highest amount of omega-9, compared with blackberry, raspberry, redcurrant, blackcurrant seed oil and many other fruit seed oils on the market.⁴

Oleic acid is known to permeate skin layers without disordering other fatty acids in the skin, and acts as a permeability enhancer for other compounds present in plant oils.

Oils high in oleic are absorbed well by the skin and lock in moisture incredibly well.

6

LINOLEIC ACID (OMEGA-6)

Linoleic acid is the most prevalent fatty acid in blueberry seed oil. Linoleic has a particular role in structural integrity and barrier function of the skin. Oils high in linoleic acid also work to nourish and protect the skin without being too heavy.

Together, omega-6 and omega-3 polyunsaturated fatty acids play a critical role in normal skin function and appearance, and are considered essential nutrients for the skin.

Efficacy DATA

ORAC TEST

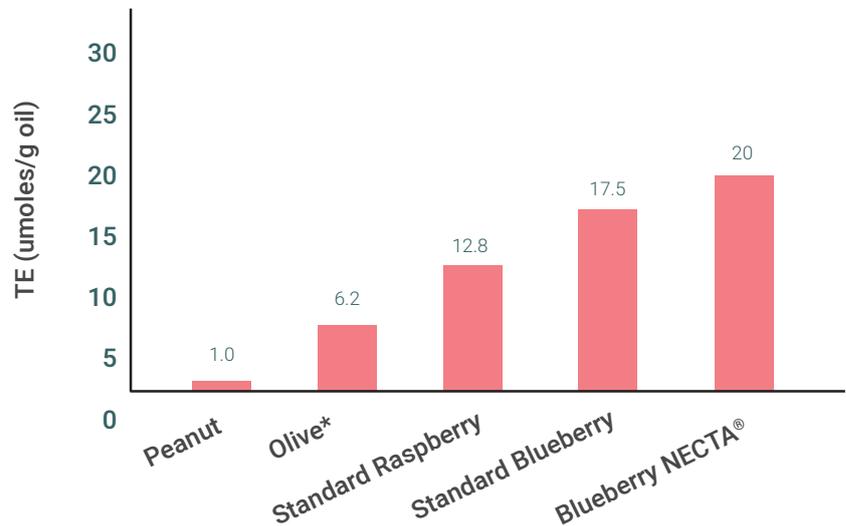
Blueberry NECTA® was tested against a standard blueberry seed oil using the ORAC method, in order to measure antioxidant capacities in biological samples *in vitro*.

RESULTS

Blueberry NECTA® has a **14% higher antioxidant capacity** compared with standard blueberry seed oil. It was also shown to have a significantly higher antioxidant capacity than standard raspberry seed oil, olive oil and peanut oil.

Figure 3. ORAC values of cold-pressed oils

TE stands for the trolox equivalents.



ORAC values for Raspberry from J. PARRY. Fatty Acid Composition and Antioxidant Properties of Cold-Pressed Marionberry, Boysenberry, Red Raspberry, and Blueberry Seed Oils. J. Agric. Food Chem (2005). ORAC values for Peanut and Olive from Ninfali et. al (2001); Antioxidant Capacity of Extra-Virgin Olive Oils. ORAC values for Standard Blueberry and Blueberry NECTA® from own ORAC studies.

*Results based on a name brand olive oil with the highest ORAC value.



Full Circle

UPCYCLED BEAUTY

ABOUT FULL CIRCLE

We develop natural and sustainable personal care ingredients that are made entirely from nutrient-rich plant-based materials that would otherwise go to waste.

Our portfolio offers forward-thinking brands & formulators a unique opportunity to create innovative beauty products that make excellent use of the precious resources around us - without compromising on quality or efficacy.



References

1. <https://lpi.oregonstate.edu/mic/health-disease/skin-health/vitamin-A>
2. V. Van Hoed. BERRY SEEDS: A SOURCE OF SPECIALTY OILS WITH HIGH CONTENT OF BIOACTIVES AND NUTRITIONAL VALUE. Faculty of Bioscience Engineering Ghent University Coupure Links 653, 9000 Ghent. 2008
3. J. PARRY. Fatty Acid Composition and Antioxidant Properties of Cold-Pressed Marionberry, Boysenberry, Red Raspberry, and Blueberry Seed Oils. J. Agric. Food Chem. 2005, 53, 566-573
4. J.C. Bada et al. Characterization of Berry and Currant Seed Oils from Asturias, Spain, International Journal of Food Properties, 17:1, 77-85, DOI: 10.1080/10942912.2011.614369, 2014

