

Monteloeder

NutroxSun™



**NutroxSun: new evidence strengthens
the case for skin defence from within**

Natural, proven and user-friendly

NutroxSun from Monteloeder is a scientifically-proven ingredient that is at the cutting edge of the rapidly evolving market for food and drink products designed to protect skin from the sun's harmful rays. Containing extracts of grapefruit and rosemary that work synergistically, it harnesses the natural power of plant extracts to deliver proven sun defence from within.

An array of in vitro and human studies commissioned by Monteloeder have demonstrated that NutroxSun is highly effective in protecting people from sunburn and preventing damage to human cells ^{1,2,3}. Now the results of a soon-to-be-published large-scale clinical trial conducted by an independent laboratory confirm that NutroxSun offers significant sun protection and anti-ageing benefits in the form of better resistance to sunburn, increased skin elasticity, reduced skin wrinkle depth and decreased oxidation of skin cells.

Previous studies showed that other natural ingredients marketed with a suncare-from-within proposition cannot match the performance of NutroxSun. Furthermore, this latest research shows that NutroxSun delivers protection and skin improvements at a level that consumers can see for themselves, which is a crucial factor for promoting ongoing consumption. As a solution that's natural, proven and user-friendly, NutroxSun is the ideal ingredient for manufacturers looking to mount a serious challenge to the market for topical suncare products.



The trouble with topical sun protection

The benefits of sun protection-from-within products, as opposed to creams and sprays, are becoming more widely appreciated. Topical sunscreens alone often fail to provide reliable all-day defence for the skin for several reasons.

First, most people only apply sunscreen at a quarter of the 2mg/cm² recommended level ⁴, in which case a product designed to offer SPF50 will only deliver a quarter of this protection ⁵. Even if somebody applies a topical product in sufficient quantity, it can soon wear off due to everyday processes such as sweating or rubbing against clothing.

Furthermore, most people only apply topical sunscreens when they are actively seeking sun exposure. With an estimated 80% of lifetime sun exposure occurring incidentally⁶, this can leave skin vulnerable to damage for significant portions of time. People also need sunlight to reach their skin in order to stay healthy. Blocking the sun out with topical products may contribute to vitamin D deficiency, which is linked with various cancers and bone disease.

Using a sun-care-from-within product such as NutroxSun overcomes all these problems. The right product, when consumed regularly, can provide all-round reliable sun protection for the whole body, all day and every day.



Consumers are ready for a fresh approach to sun care

The timing couldn't be better for companies looking to offer sun care-from-within functional foods, beverages and supplements.

Datamonitor Consumer says that sun protection products accounted for almost two thirds of the \$8.7 billion global spend on sun care in 2013, and sun care in turn grabbed a 10% slice of the global skincare market ⁷.

In 2014, consumers who were 'very concerned' or 'extremely concerned' about sun damage equated to 18% of the population in the UK, 28% in the USA, 31% in Australia, 42% in Brazil and a huge 45% in India. And with everyday convenience high on the agenda of concerned consumers, the analyst identified 'ingestible sun protection' as a major opportunity.

Sun protection from functional ingredients is also a great fit with the wider trend for beauty-from-within functional products.

Consumers all over the world are turning to functional ingredients to deliver a wide range of health benefits, including skincare. However, the most promising region for skincare-from-within is Asia. Here, there is a long tradition of using functional food and drink products, and as many as 40% of consumers believe that skin health is 'very important' ⁸.

Across Singapore, Malaysia and Indonesia, the number of beverage launches featuring the terms 'beauty', 'skin health' or similar jumped from 12 in 2012 to 29 in 2013, according to Mintel's Global New Product Database⁹. This upward trend looks set to continue, with 21 launches recorded from January to August 2014.



NutroxSun – the latest evidence

The new clinical study was conducted in Italy by an independent laboratory. The researchers divided 105 subjects into three groups and gave them dietary supplements containing either 100mg or 250mg of NutroxSun or a placebo. The researchers then exposed the skin on the volunteers' backs to UV light and measured levels of skin damage at regular intervals.

The researchers measured skin redness among the subjects and found that while the 250mg dose got to work fastest, reducing redness after just 25 hours, the 100mg dose also began delivering benefits within 48 hours. Meanwhile, levels of redness in the placebo group increased substantially.

In addition, the team recorded the minimal erythema dose (MED) – the threshold dose of UV at which sunburn first appears. It found that the 100mg and 250mg groups' MED rose by 29.8% and 26.9% respectively, thereby significantly delaying the onset of sunburn, after taking NutroxSun for two months. In contrast, the placebo group registered an increase of less than 3.8%.

When they looked at lipid peroxidation, which indicates oxidation of the skin cells, they found that it was diminished in the NutroxSun groups by between 9.7% and 10.2% after two weeks and 20.1% and 21.7% after two months. In contrast, lipid peroxidation in the placebo group increased by 5% after two weeks and 9.3% after two months.

The team also monitored other key measures of skin health and appearance. After just two weeks, skin elasticity in the NutroxSun groups increased by between 2.9% and 3.3%, compared with a decrease of 0.1% in the placebo group. After two months, skin elasticity increased by between 7.4% and 9.0% in the NutroxSun groups and decreased by 0.5% in the placebo group.

They checked wrinkle depth and found a reduction in both the NutroxSun groups of between 8.8% and 9.1% after two weeks and between 13.9% and 14.8% after two months. In the placebo group, wrinkle depth increased by 1.2% after two weeks and 0.8% after a month.

Product(s) effect on the measured parameters

	100 mg NUTROXSUN			250 mg NUTROXSUN			PLACEBO		
	0.5M	1M	2M	0.5M	1M	2M	0.5M	1M	2M
Minimal Erythema Dose (mJ/cm2)*	+4.0	+5.2	+7.7	+3.1	+5.5	+7.5	+0.2	+0.8	+0.9
Minimal Erythema Dose**	+15.2%	+20.5%	+29.8%	+11.7%	+20.2%	+26.9%	+1.2%	+2.7%	+3.8%
Skin elasticity - R2**	+1.8%	+3.2%	+4.6%	+1.5%	+2.9%	+3.7%	-0.3%	+0.5%	+0.2%
Skin elasticity - R5**	+3.3%	+5.8%	+9.0%	+2.9%	+5.5%	+7.4%	-0.1%	+0.8%	-0.5%
Wrinkle depth**	-8.8%	-13.4%	-14.8%	-9.1%	-12.6%	-13.9%	+1.2%	-2.2%	+0.8%
LPO - 4h**	-9.7%	-16.2%	-20.1%	-10.2%	-16.4%	-21.7%	+5.0%	+5.4%	+9.3%
LPO - 24h**	-8.7%	-13.4%	-15.1%	-9.1%	-13.3%	-15.8%	+4.5%	+4.4%	+3.8%

Legend * variation vs. T0 (i.e. Tx-T0). ** % variation vs. T0 (i.e. [Tx-T0]/T0). i.p. in progress

Good news on dosage

The researchers in the trial found no statistically significant difference in the long-term benefits enjoyed by volunteers taking a dose of 100mg of NutroxSun and those taking a 250mg dose. This groundbreaking result means that Monteloeder can confidently recommend the use of formulations containing a lower dose than previously.

For food, beverage and supplement formulators, this could mean the difference between recommending two capsules per day and the simplicity of an easy-to-swallow, one-a-day solution, for example.

NutroxSun – Feel the difference

So the objective evidence is conclusive, but that's not all. Participants were also asked whether they noticed any improvements in their skin during the test.

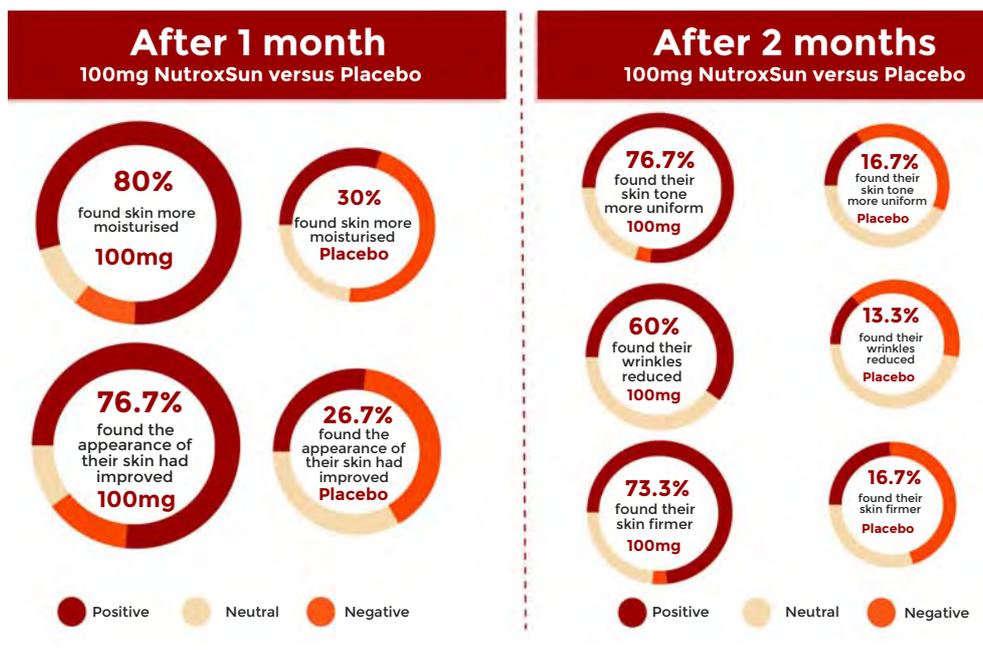
After one month of taking 100mg NutroxSun:

- 80% found skin more moisturised
- 76.7% found the appearance of their skin had improved

After two months of taking 100mg NutroxSun:

- 60% found their wrinkles reduced
- 60% found their skin whiter
- 73.3% found their skin firmer
- 76.7% found their skin tone more uniform

The ability of consumers to see skin improvements for themselves is vital for the commercial success of products with a beauty-from-within positioning.



NutroxSun components work in synergy to deliver more protection

It's the unique combination of active components in NutroxSun that makes it so outstandingly effective, because they work in a number of different ways to target specific types of sun damage.

Water-soluble antioxidants quench and/or scavenge the initial pro-oxidising species such as the superoxide radical anion and hydroxy radical. This prevents oxidative damage of lipids, proteins and DNA.

Lipid-soluble antioxidant activity blocks the generation of peroxy radicals resulting from the degradation of cell membranes, which in turn is caused by the initially-formed radicals mentioned previously. This second line of defence prevents cellular malfunctions that might otherwise have cytotoxic and carcinogenic effects.

Anti-inflammatory activity is also essential to inhibit tissue damage occurring after exposure to UV radiation. Moreover, rosemary and citrus polyphenols show significant absorption within the UVB range and at least part of their protective effect is believed to be based on direct absorption and scattering of UVB radiation.



A trusted partner

Monteloeder's new product development expertise means the company is an ideal partner for companies that have spotted potential demand in their own markets for functional foods, beverages and supplements delivering proven sun protection. Monteloeder offers its customers full technical support during the product development phase. In addition, Monteloeder is keen to explore co-branding and marketing opportunities for NutroxSun.

Monteloeder has been developing, manufacturing and distributing ingredients and formulations for the nutrition and cosmetics industry since 1996. With sales operations in more than 38 countries and offices in Europe and Asia, its innovations are underpinned by solid science and extensive application expertise.

Clear consumer appeal

NutroxSun is supplied as a powder that is easy to formulate in beverages, including ready-to-drink products. Monteloeder has also developed a formulation suitable for a one-a-day shot, which provides the new recommended daily dose of 100mg in an ultra-convenient format. Nutrition bars, gummies and gels are also possibilities.

Monteloeder recommends positioning NutroxSun-based products to be used on their own to provide everyday sun protection and combining them with topical protection during periods of high sun exposure, such as summer holidays or skiing.

Products containing NutroxSun are already commercially available in functional beverage products in several markets, including Malaysia, Thailand, the Philippines, Indonesia and Japan. NutroxSun's 100% natural formulation from the sunny Mediterranean delivers clear consumer appeal in all markets globally.

Of course, a good marketing angle is worth very little if the ingredient doesn't deliver the results consumers are looking for. The recent clinical trial adds significant weight to the growing collection of scientific evidence that NutroxSun has the power to deliver genuine sun protection and skincare benefits.

NutroxSun benefits at a glance

- Protection extends to any exposed skin and lasts all day, every day, provided consumption continues
- Protection starts working after only two days of consumption and the resistance to sunburn increases almost 30% in two months (at 100mg/day)
- NutroxSun is 100% natural and based on plant extracts, so it is perfect for clean-label formulations
- NutroxSun is available for use in a wide range of functional foods, beverages and supplements
- Successful commercial products containing NutroxSun are already available in several markets
- Monteloeder provides full support for new product development
- Monteloeder is also keen to work with customers on co-branding and joint marketing opportunities

References

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