Lipoid Kosmetik

New

HerbaShield® URB

The Natural Solution to Pollution

- Protection against environmental stress
- Strengthening of the skin barrier
- Enhanced detoxification of air pollutants
- Reduction of pollution-induced skin damage and aging

At a Glance

The constant exposure to air pollutants is one of the major threats for skin health. The contaminants affect the skin on several levels, such as the stimulation of inflammatory pathways, the induction of oxidative stress and the acceleration of skin aging. This fact constitutes the consumer's desires for multi-functional ingredients that fight pollution-induced skin damage and aging with diverse mode of action. Thereby, the most promising approach is the utilization of the body's endogenous detoxification machinery, which is composed of a multitude of cell-protective and detoxifying enzymes. These components are powerful enough to neutralize thousands of toxic molecules every second. In contrast, the mere application of antioxidants is less efficient, as one molecule of antioxidant only neutralizes one free radical.

With HerbaShield URB we developed a COSMOS-approved multi-component active ingredient based on extracts from watercress, nettle and horsetail, as well as on natural phospholipids. HerbaShield URB targets three mechanisms to naturally reduce pollution-induced skin damage and accelerated aging: (1) strengthening of the skin barrier through hydrogenated lecithin; (2) enhancing the endogenous detoxification machinery by active ingredients of the plant extracts; (3) additional cell protection due to high antioxidative capacity.

HerbaShield URB was designed to implement the consumer's concerns about pollution, and is perfectly suitable for detoxifying and protecting skin care solutions such as anti-aging and day creams, face masks or cleansers.

Impaired Skin Health – Air Pollution is a Global Concern

The World Health Organization (WHO) has announced that pollution is the world's biggest environmental health risk. However, the pollutants, which are invisibly residing in the air, do not only impact heart and lungs; they also affect the health of our skin.

Pollutants are a major threat for skin health and accelerated skin aging

The constant exposure to contaminants in the air is one of the main threats for skin health. Pollutants affect the skin on several levels, such as the stimulation of inflammatory pathways, the induction of oxidative stress and the acceleration of extrinsic skin aging. This fact constitutes the consumer's needs for multi-functional ingredients that fight pollution-induced skin damage and aging with diverse mode of action, including:

- The protection of the skin barrier to limit the penetration of pollutants
- A stimulation of the endogenous detoxification machinery to alleviate harmful effects
- Antioxidant activity to counteract oxidative stress

Pollution-induced skin damage is a global concern

Combating the pollution-induced skin damage is, and will be, a fundamental focus of the cosmetic industry in the next decades. Interestingly, according to Mintel more than one third of all anti-pollution products in 2016 were launched in Asia Pacific. This fact demonstrates that, initially, active anti-pollution ingredients have been targeting Asian markets and have been addressing consumers exposed to heavily contaminated city air. However, the anti-pollution wave markedly expands into a global cosmetic issue.

- Firstly, the awareness of pollutants damaging the skin is not only prominent in populous and highly polluted cities in Asia any more. The consciousness that even low levels of air contaminants promote skin aging and damage has reached the western countries.
- Secondly, pollutant-impaired skin health is not only an urban phenomenon. Besides, the skin is exposed to atmospheric contaminants that occur indoor (for instance environmental tobacco smoke), and even agricultural holdings at the countryside produce air pollutants.

Anti-pollution ingredients will meet the consumer's needs in the next decades

In other words, diminished skin health linked to air pollution is affecting all of us, every day. Therefore, the seeking for multi-functional and natural active ingredients fighting the harmful effects of air contaminants is an increasing demand worldwide. Implementing the consumer's concerns about pollution into skin care solutions such as anti-aging and detoxifying day creams, protective face masks or cleansers, is the future direction of the cosmetic industry.

Skin Protection against Pollutants

Air pollutants cause premature and accelerated skin aging

Particulate matter (PM), divided into PM2.5 (< 2.5 µm; respirable) and PM10 (< 10 µm; not respirable), disrupt the integrity of the skin barrier. In addition, PM function as carrier of pollutants by binding them to the surface[1]. That enhances the penetration and accumulation of harmful substances in the skin[2].

Pollutants are mainly composed of polycyclic aromatic hydrocarbons (PAH). Benzo[a]pyrene (BaP) is considered the most dangerous PAH[3]. However, also other substances, such as heavy metals, endotoxins, ions, or reactive gases adhere to PM.

Excessive exposure to pollutants and the concomitant defense responses give rise to oxidative stress and, therefore, become drivers of skin diseases and signs of aging[3,4]. In fact, air pollutants induce the formation of wrinkles and pigmentation spots[5].

The skin's detoxification machinery

The skin constitutes the barrier and the protective layer of the body. However, PAH can penetrate this barrier. For that reason, the skin has a potent, two-phase detoxification machinery:

- Phase I: Pollutants are activated for further processing, but become toxic
  The aryl hydrocarbon-receptor (AHR) is a pollutant sensor, which constitutes the starting point of the detoxification mechanism[6]. In phase I, AHR orchestrates defense-related genes, such as CYP1A1[7]. The corresponding enzymes (cyochrome P450 superfamily) activate the pollutants for further processing; this reaction generates reactive intermediates, which can cause cell damage[8]. Besides, the activation reaction also produces reactive oxygen species (ROS) as by-products. Therefore, a stimulation of phase I is harmful, if the reactive intermediates and ROS cannot be adequately detoxified[9].

- Phase II: Pollutants are finally detoxified, and cyto-protective processes are initiated
  During phase II, the reactive intermediates are transformed into excretable products through conjugation reactions[10]. This final detoxification is controlled by nuclear factor (erythroid-derived 2)-like 2 (Nrf2)[7]. Nrf2 activates a broad range of conjugating enzymes, such as glutathione-S-transferase (GST; exemplified in Fig. 1).
  Furthermore, Nrf2 stimulates numerous cyto-protective and antioxidant enzymes[11], that detoxify ROS by-products generated in phase I.

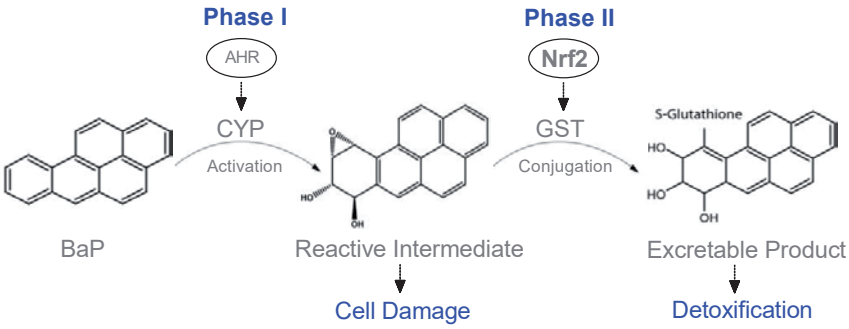


Fig. 1: Nrf2 protects against reactive intermediates. BaP is transformed in a phase I reaction into a reactive intermediate. Subsequently, the intermediate is linked to glutathione in a phase II conjugation reaction through GST, and can thereby be excreted before cell damage arises. GST is controlled by Nrf2.

Strengthening the endogenous detoxification machinery is a promising anti-pollution strategy

AHR-activation and excessive ROS are considered the main causes for pollutant-induced skin damage and aging[3]. Nrf2 activation can counteract that[11]. These findings constitute the basis for several anti-pollution and anti-aging approaches:

1. Strengthening the skin barrier to reduce penetration and accumulation of pollutants. Phospholipids are suitable candidates to support the protective layer.

2. Reinforcing the Nrf2-dependent detoxification process (phase II) to ensure an effective detoxification of pollutants and ROS by-products. The most promising ingredients for activating Nrf2 are isothiocyanates[12,13] and flavonoids, such as quercetin or kaempferol[7,14], present in specific plant extracts.

3. The addition of plant-derived antioxidants to prevent oxidative stress.

With HerbaShield URB we developed a multi-component active ingredient based on plant extracts and natural phospholipids that target these three approaches to reduce pollution-induced skin damage and accelerated aging.

Composition

Watercress (*Nasturtium officinale*) – detoxifies environmental pollutants

Synonyms: Wasserkresse, Brunnenkresse (DE); watercress (EN); cresson de fontaine, cresson officinale, cresson d'eu (FR)

In 2014, nutritionists pronounced watercress as the healthiest food in the category of fruits and vegetables[15]. In popular medicine, watercress is considered a metabolic fuel and is recommended for spring detoxification regimen as well as for skin cleansing[16]. It was believed that it would assist with detoxification and cleansing from the inside; the skin texture would mend and improve, and the wrinkle formations would decrease. These relatively unspecific claims are receiving more and more support from new research findings. For instance, a current study showed that the intake of watercress extract among smokers lead to a considerably lower level of damage through toxins in cigarette smoke[17].

The detoxifying effect of watercress is predominantly ascribed to isothiocyanates, which are also found in dry drugs made of watercress[16,18]. Isothiocyanates activate specific phase I and II enzymes and thus support the skin cell's endogenous detoxification machinery[12].

Hence, the use of watercress extract represents an efficient cosmetic anti-pollution strategy. The extract offers not only protection against toxins from tobacco, but also against other environmental pollutants. Consequently, not only smokers and passive smokers but also all those living in urban settings can make use of this protection.

Nettle (*Urtica dioica*) – detoxifies, purges, flushes out

Synonyms: Grosse Brennnessel, Nesselkraut (DE); stinging nettle (EN); ortie (FR)

Almost everyone had a painful experience with nettle. For that reason, this plant does not have a very positive image. Previously, however, this robust plant was not considered annoying, but, rather, a true friend that came to the rescue of some[19]. Clothes intended to keep warm were made with fibers from its stalks and in times of famine, its leaves were cooked like vegetables.

Today, nettle celebrates its comeback as a plant used in healing and beauty regimens. Nettle is perhaps the most well-known and popular plant used in purging and detox regimens, as it has a diuretic effect and boosts metabolism, and in healing of wounds[16]. Its actual mode of action is not fully understood, but it is probably based on its potential as antioxidant and on its ability to protect from inflammation-inducing environmental stress[20].

Apart from caffeoylquinic acids, the active components are flavonoids, in particular quercetin[21]. Quercetin has the ability to enhance the activity of Nrf2, a cellular master regulator of the detoxification machinery. Quercetin, moreover, is able to induce detoxifying and antioxidant enzymes[7,14]. All this makes the nettle extract the perfect starting point for cosmetic concepts for detoxification and anti-pollution.

Composition

Horsetail (*Equisetum arvense*) – restorative for the skin

Synonyms: Ackerschachtelhalm, Zinnkraut, Scheuergras (DE); horsetail, scouring rush (EN); prêle des champs (FR)

The botanical designation „Equisetum" (lat. „equus" and „saeta" = horse bristles) derives from the fact that the stalks are as tough as horse's bristle. The tough, knobby stalks were once used to scrub pans and metal pots. In Asia, the cooked stalks represent a crispier alternative to bamboo in rice dishes.

On account of its high silica content, horsetail is particularly attractive for cosmetic use. Silica boosts the collagen fiber of the skin and invigorates both the connective tissues and the growth of nails. Silica also acts as an astringent, i.e. with the effect of tightening and narrowing of the pores. Thus, creams containing horsetail extract are used not only to tighten the face, neck and chest area, but also to prevent the formation of cellulite and to avert impure skin [16,22].

Here, horsetail is used because of its general protective properties. Horsetail extracts possess antioxidants and anti-inflammatory properties [22], and have a positive influence on the cellular resistance to oxidative stress. Flavonoids, in particular, kaempferol, quercetin and protogenkwanin glycosides, are listed as the primary active ingredients [18,22,23]. Owing to its properties, the use of horsetail has a positive effect on skin damaged by pollutants.

Hydrogenated lecithin – strengthening and restoration of the skin barrier

Epidermal lipids play a pivotal role in skin barrier functionality and integrity but are constantly challenged by pollutants, which weaken the barrier by inducing lipid peroxidation. A disrupted barrier, in turn, is unable to provide adequate protection against environmental stressors.

Hydrogenated phospholipids enhance the barrier function and are considered active and functional skin care ingredients with versatile benefits, such as:

- Protective barrier-forming
- Membrane- and film-forming
- Hydrating & re-fattening
- Essential constituents of cellular membranes
- Bioactive molecules for skin formation and skin renewal

We thus embedded the plant constituents of HerbaShield URB into a matrix of maltodextrin and hydrogenated lecithin. The latter are derived from non-GMO soybean lecithin and mainly consist of hydrogenated phosphatidylcholine (HPC). HPC possesses physical properties that are comparable to those of the components of the skin. When applied topically, it is taken up by the stratum corneum and strengthens the skin [24]. Indeed, topical formulations with HPC are suitable to stabilize the skin barrier and are reported to have a skin protective function [25].

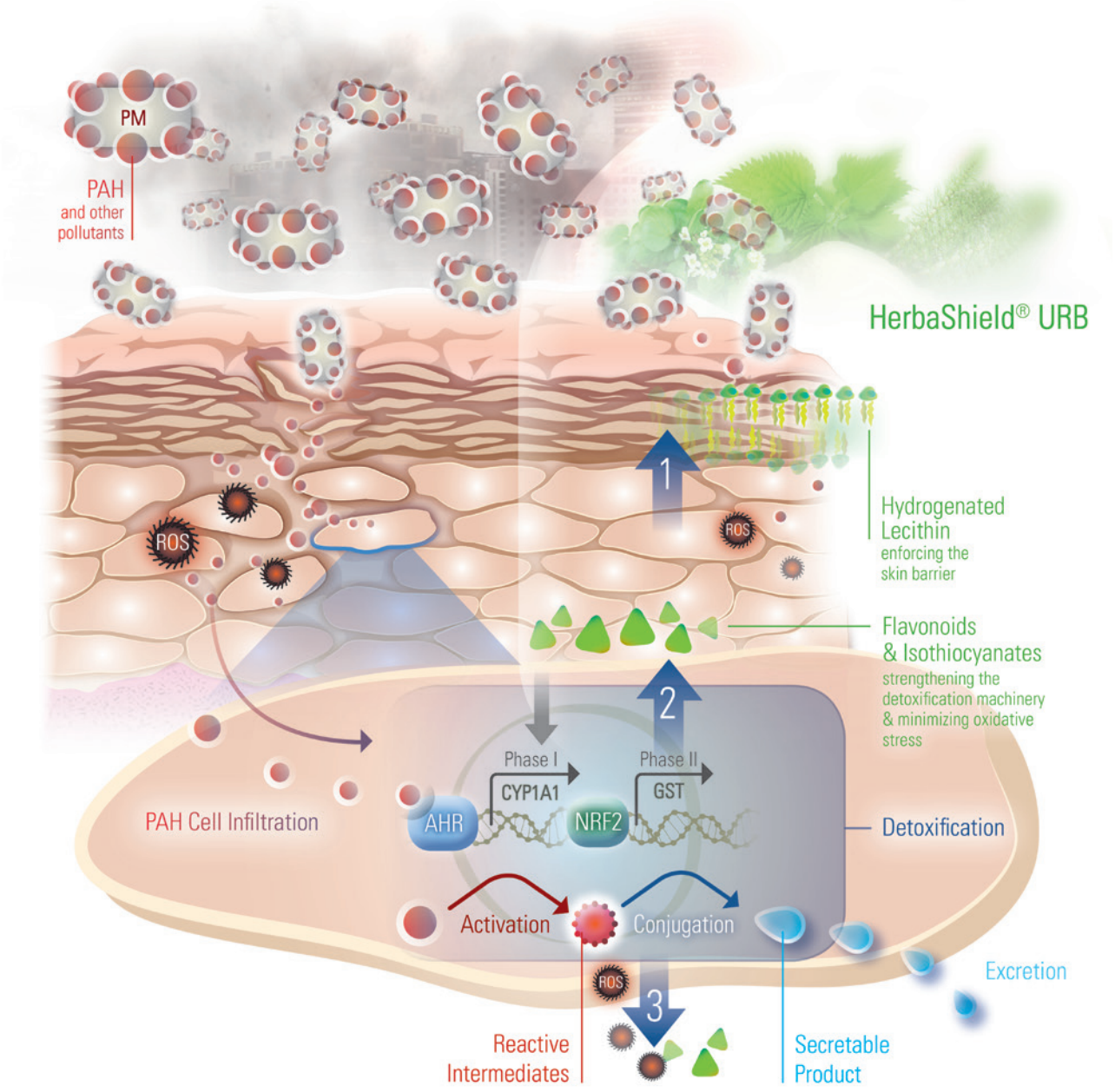
Hence, hydrogenated lecithin provides twofold protection: firstly, it preventively strengthens the skin barrier against environmental stressors such as pollutants and, secondly, it regenerates and restores the skin upon pollutant-induced damage.

Mode of Action

Pollutants, such as polycyclic aromatic hydrocarbons (PAH), adhere to particulate matter (PM) and penetrate the skin. A starting point to protect the skin from these pollutants is to strengthen the barrier. In addition, active ingredients that positively influence the endogenous detoxification machinery are suitable for cosmetic anti-pollution concepts [26].
In the epidermis, the enzymes of phase I activate the pollutants for further processing, but make them reactive and toxic. During phase II, Nrf2 not only ensures a rapid detoxification of these reactive intermediates, but also initiates antioxidant defense in order to minimize oxidative stress. Therefore, the activation of Nrf2 and a shift of the phase I/II balance in favor of phase II, is a promising anti-pollution approach. Active ingredients derived from watercress, nettle and horsetail have these properties and thus have a great potential to protect the skin from pollutant-induced cell damage and accelerated skin aging [12,17].

HerbaShield URB relieves and strengthens the endogenous detoxification in numerous ways:

1. Hydrogenated lecithin strengthens the skin barrier and thus reduces the pollutant penetration.
2. Active ingredients, such as isothiocyanates and flavonoids, suppress phase I and activate phase II [7,14]. This enhances the efficiency of the endogenous detoxification machinery and protects against reactive intermediates and toxic ROS by-products.
3. High antioxidant properties constitute an additional defense line and minimize oxidative stress.



Phytochemical Analysis

Objective:

- To identify the main active ingredients of HerbaShield URB and to evaluate their stability.

Technique:

- HPTLC (high performance thin layer chromatography) was used to assess the overall flavonoid composition.
- Dereplication Analysis: Liquid chromatography coupled with mass spectrometry as well as UV- and light scattering detectors (LC-MS/UV/ELSD) allowed database-assisted identification of secondary metabolites.
- Antioxidant power (AP), i.e. antioxidant capacity and reactivity were analyzed by electron spin resonance (ESR) spectroscopy. The overall antioxidant power is expressed as antioxidant units, where one unit corresponds to the activity of a 1 ppm solution of pure ascorbic acid as a benchmark [27].

Results:

- Flavonoid fingerprint-analysis of the aqueous-alcoholic pre-material of HerbaShield URB using HPTLC revealed substantial amounts of various flavonoids, which correlate with the antioxidative power (Fig. 2A).
- HPTLC also demonstrated adequate heat and storage stability. Heating to 80 °C for 2 h or storage at 40 °C for 1 month had no effect on the overall flavonoid pattern (Fig. 2B). HerbaShield URB showed an equivalent flavonoid composition, demonstrating that embedding of the pre-material into the phospholipid/ maltodextrin matrix does not affect the active ingredient profile (not shown).
- Dereplication analysis identified flavonoids such as quercetin-, kaempferol-, and protogenkwanin-derivatives as well as caffeoylquinic acid derivatives and phenylpropanoids (e.g. cichoric acid) as main constituents (Fig. 3). In addition, the presence of isothiocyanates such as gluconasturtiin was confirmed by extracted ion chromatograms (not shown).

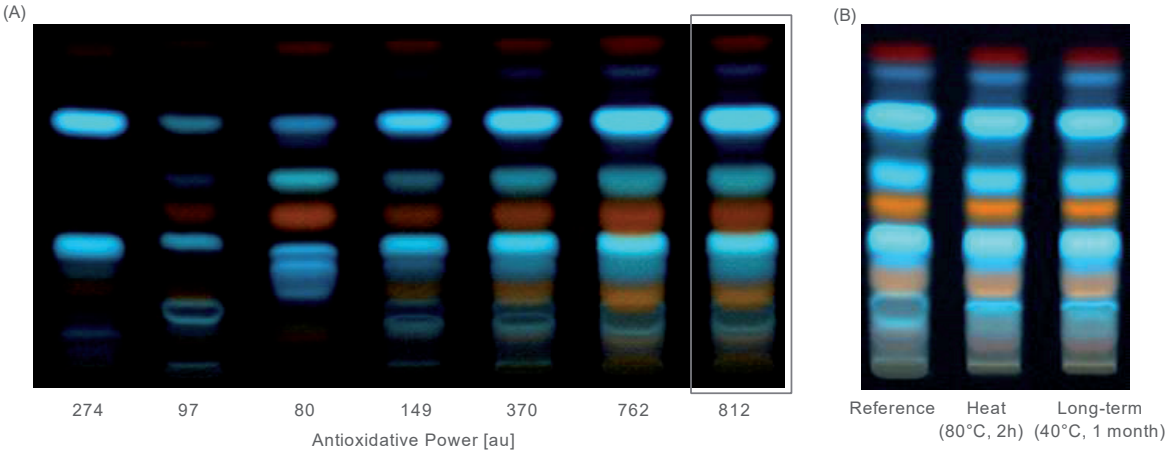


Fig. 2: HerbaShield URB has a stable, high-value flavonoid profile and significant antioxidative power. (A) During the development of HerbaShield URB, the extraction profile of the aqueous-alcoholic pre-material was constantly optimized. The HPTLC flavonoid fingerprints illustrate different prototypes of the pre-material – from extracts with few ingredients (left) to the final, high-value material that builds the basis of HerbaShield URB (very right). (B) Flavonoid fingerprints of the aqueous-alcoholic pre-material under control, heat and long-term storage conditions.

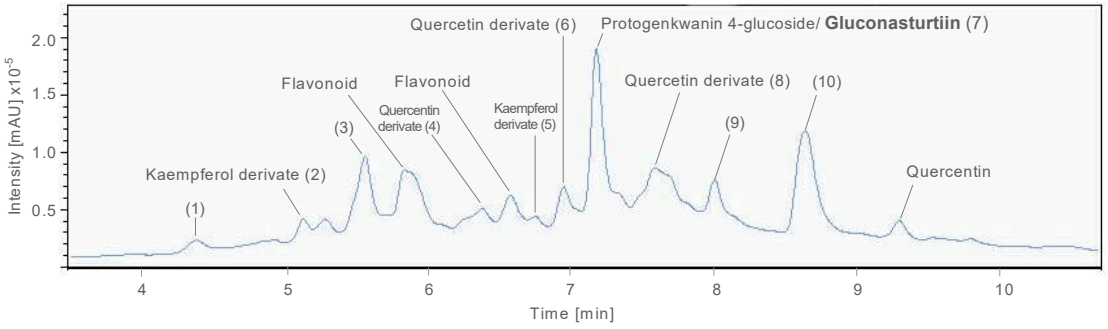


Fig. 3: HerbaShield URB combines a wealth of potent metabolites. Dereplication analysis of the aqueous-alcoholic pre-material. (1) Tryptophan; (2) Kaempferol3-glucoside7-sophoroside; (3) 5-O-caffeoylquinic acid; (4) Quercetin 3,5-digalactoside; (5) Kaempferol-3-O-sophoriside; (6) Quercetin-3-O-rutinoside; (7) Protogenkwanin 4-glucoside/ Gluconasturtiin (an isothiocyanate); (8) Quercetin-3-O-(6''-malonylglucoside); (9) 1,5-Di-O-caffeoylquinic acid; (10) Mesocichoric acid.

in vitro Activity

Particulate matter and pollutants impair skin cells

Objective:

- To show that particulate matter and pollutants stress the skin. PAH are among the most frequently occurring pollutants and adhere to the surface of the particulate matter[1]. BaP is a well-known PAH model.

Technique:

- MTT Assay: Living, metabolically active cells transform the yellow dye MTT to blue dye crystals. The potency of the blue dye thus correlates with the metabolic activity and the vitality of the cells.

Study Details:

Design	Cell-culture assay
Test Panel	Immortalized human keratinocytes (HaCaT cells)
Test Substances	Naturally occurring diesel particulate matter (PM 1650b) BaP, one of the best-known polycyclic aromatic hydrocarbon (PAH)
Application Frequency	Incubation for 48 h
Primary Endpoints	Metabolic activity/ vitality
Secondary Endpoints	Visualization by microscopy

Results:

- Particulate matter, starting at a concentration of 125 µg/ml, reduced the metabolic activity and vitality of skin cells (Fig. 4). Pollutants adherent to particulate matter are considered to cause their toxicity[3]. In fact, BaP disrupted the metabolic activity and vitality of skin cells already at a concentration of 0.16 µg/ml (Fig. 5). The stress signals were clearly visible (Fig. 6) under the light microscope.

Conclusions:

- Pollutants impair skin cells. Efficient protective strategies are thus required.

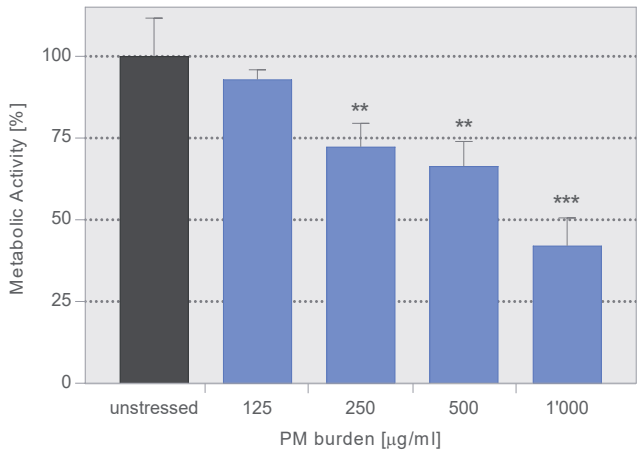


Fig. 4: Particulate matter reduce the vitality of skin cells. Human keratinocytes were incubated for 48 h with particulate matter (PM). Metabolic activities and vitality reduced with an increase in PM stress. N = 4; Mean ± SD; Student's unpaired t-test versus unstressed; ** = p <0.01; *** = p <0.001.

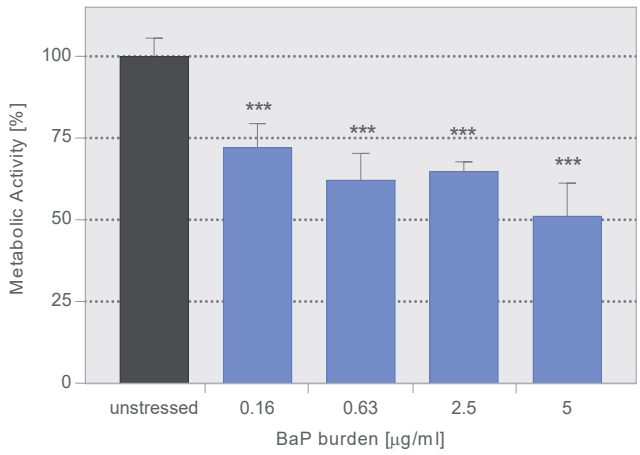


Fig. 5: Pollutants reduce the vitality of skin cells. Human keratinocytes were incubated for 48 h with BaP. Metabolic activity and vitality reduced with an increase in pollutant stress. N = 4; Mean ± SD; Student's unpaired t-test versus unstressed; *** = p <0.001.

in vitro Activity

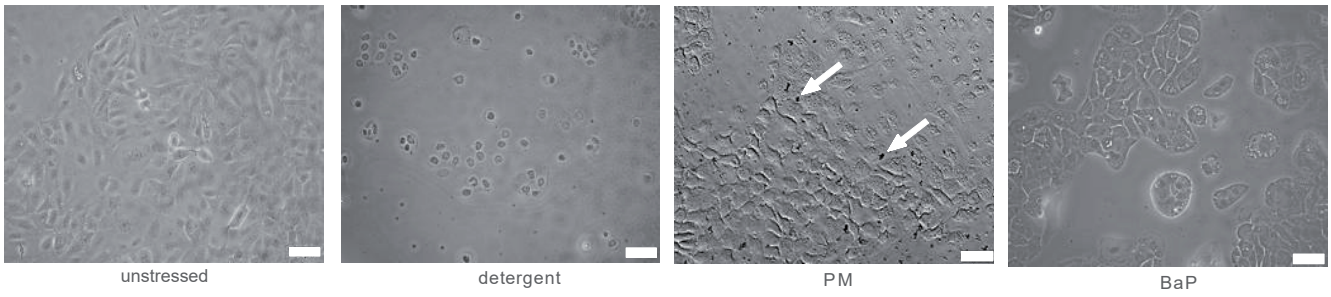


Fig. 6: **Pollutants induce skin damage.** Light microscopic images following 48 h of exposure to stressors. Unstressed keratinocytes showed a characteristic structure and organisation in monolayer. Cells that were devitalized with detergents shrank, were nodular and detached from the bottom of the cell culture container. These stress signals were also observed with cells that were treated with 500 µg/ml particulate matter (PM; note the particles in the image) or with 5 µg/ml BaP. Scale bars = 50 µm.

HerbaShield® URB enhances the skin's endogenous detoxification machinery against pollutants

Objective:

- To show that HerbaShield URB positively affects the Nrf2 signal pathway.

Technique:

- Nrf2 Transcription Factor Assay: An ELISA-based method to quantify the DNA binding activity of Nrf2 in nuclear extracts. Increased binding activity translates into increased expression of various genes that encode for cyto-protective enzymes.

Study Details:

Design	Cell-culture assay
Test Panel	Primary human keratinocytes (NHEK), a suitable model for investigating the AHR-Nrf2-pathway [28]
Test Substances	0.5 % HerbaShield URB
Application Frequency	Incubation for 48 h with or without 0.05 µg/ml BaP
Primary Endpoints	Nrf2 activity

Results:

- The treatment with HerbaShield URB stimulated Nrf2 activity, indicating that HerbaShield URB can induce the skin's endogenous detoxification machinery (Fig. 7).
- Cells stressed with BaP showed higher Nrf2 activity than unstressed cells, indicating that the cellular detoxifying machinery is turned on. HerbaShield URB provided an additional detoxification power as it boosted Nrf2 activity significantly during environmental stress (Fig. 7).

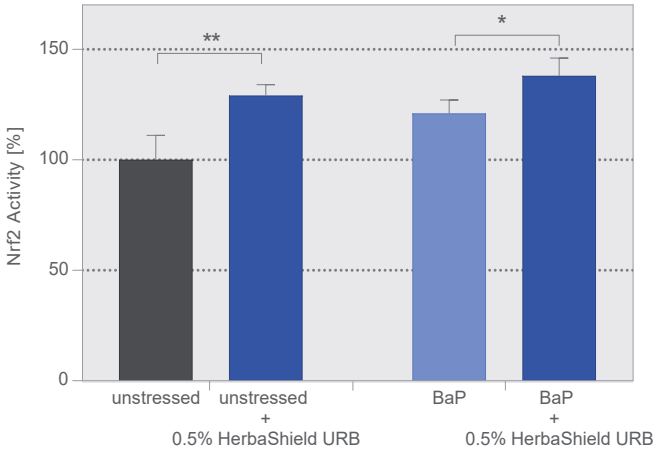


Fig. 7: **HerbaShield URB empowers the cellular detoxification machinery.** Human keratinocytes were stressed with 0.05 µg/ml BaP or not (unstressed). Nrf2 activity was significantly enhanced upon HerbaShield URB application. N = 4; Mean ± SD; Student's unpaired t-test; * = $p < 0.05$; ** = $p < 0.01$.

Conclusions:

- HerbaShield URB stimulates Nrf2 activity under unstressed as well as stressed conditions. Thereby, HerbaShield URB enhances the endogenous detoxification machinery, which is turned on by BaP. In conclusion, the addition of HerbaShield URB allows skin cells to cope even better with environmental stress.

in vitro Activity

HerbaShield® URB protects against pollutant-induced skin damage

Objective:

- To show that HerbaShield URB counteracts the pollutant-induced skin stress. Pollutants are harmful for cells as highly reactive intermediates and oxidative stress can occur during their metabolization and detoxification. Thus, pollutants ultimately cause excessive formation of ROS in the skin, which leads to premature and accelerated skin aging.

Technique:

- DCF Assay: The non-fluorescing preliminary state of a dye diffuses into the cell and is oxidized through ROS into a fluorescing product. An enhanced fluorescence signal thus indicates enhanced oxidative stress.

Study Details:

Design	Cell-culture assay
Test Panel	Immortalized human keratinocytes (HaCaT cells)
Test Substances	HerbaShield URB (aqueous-alcoholic pre-material)
Application Frequency	Pre-incubation with HerbaShield URB for 24 h followed by incubation with 1 mM H_2O_2, 2.5 µg/ml BaP or 100 µg/ml particulate matter in the presence of HerbaShield URB for 1 h
Primary Endpoints	Normalized fluorescence
Secondary Endpoints	Visualization by fluorescence microscopy

Results:

- The incubation with particulate matter or BaP led to a massive oxidative stress: the formation of intra-cellular ROS was increased threefold and was even higher than after incubation with 1 mM H_2O_2. HerbaShield URB was able to completely inhibit the pollutant-induced formation of ROS (Fig. 8, 9). The protection against formation of excessive radicals following contact with pollutants was confirmed through fluorescence microscopy (Fig. 10).

Conclusions:

- HerbaShield URB reduces the negative effects of pollutant exposure; in particular, fewer free radicals are formed. This will counteract the skin damage as well as premature and accelerated skin aging, and imply a drastic anti-aging effect.

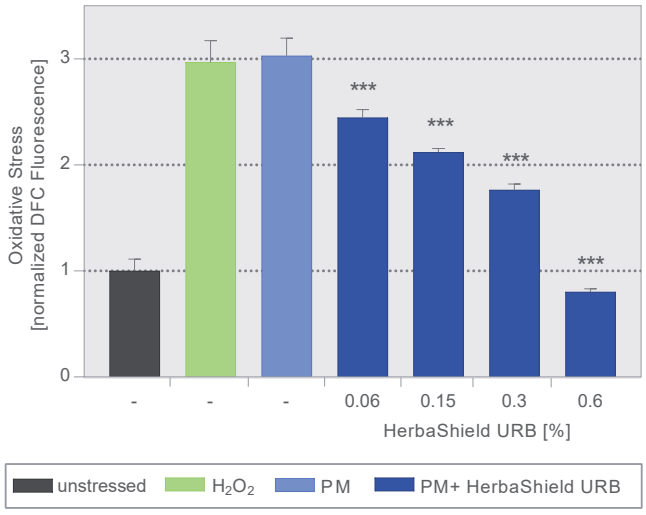


Fig. 8: **HerbaShield URB prevents particulate matter-induced skin stress.** Human keratinocytes were stressed over an hour with 100 µg/ml particulate matter (PM). HerbaShield URB reduced the stress response significantly. N = 4; Mean ± SD; Student's unpaired t-test versus stressed (PM) but untreated; *** = $p < 0.001$.

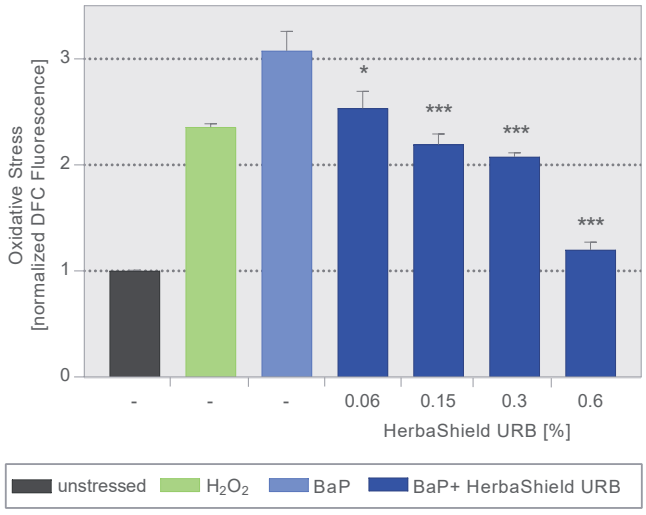


Fig. 9: **HerbaShield URB counteracts pollutant-induced skin stress.** Human keratinocytes were subject to stress over an hour with 2.5 µg/ml BaP. HerbaShield URB markedly reduced the stress level. N = 4; Mean ± SD; Student's unpaired t-test versus stressed (BaP) but untreated; * = $p < 0.05$; *** = $p < 0.001$.

in vitro Activity

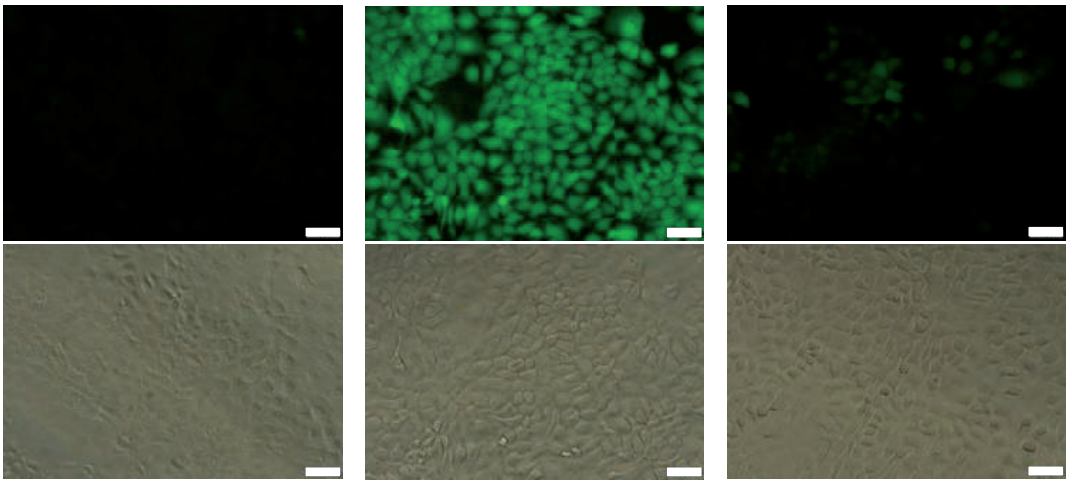


Fig. 10: Full protection against pollutants through HerbaShield URB. Unstressed cells produced low amounts of free radicals and, thus, showed low fluorescence. Cells incubated with BaP showed a high fluorescence level, indicating excessive oxidative stress. Oxidative stress was completely prevented by the application of HerbaShield URB. Fluorescence and light microscope images (upper and lower panel, respectively). Scale bars = 50 µm.

Product Characteristics

- Three-component active ingredient based on watercress, horsetail and nettle. The aqueous-alcoholic extracts are embedded in a unique matrix of phospholipids and maltodextrin, resulting in an easy-to-use powder formula combining the benefits of phospholipids and botanical extracts.
- White greenish powder
- Preservative-free/ self-preserving
- COSMOS-approved raw material

Recommended Applications & Use Levels

- Anti-pollution skin care
- Detoxification treatments
- Urban or environmental protection
- Stress defense
- Anti-aging, i.e. prevention and reduction of signs of aging

Final cosmetic products with HerbaShield URB can be claimed as e.g. 'Contains Swiss-manufactured ingredient'.

Recommended use level: 1 - 3%

Formulation Recommendations

Easy to use as it allows formulators to disperse hydrogenated lecithin (that normally needs heating) and plant extracts at room temperature, resulting in a slightly opaque solution. This dispersion can be added separately to formulations during the cooling phase of a cream or lotion. For further information please contact our customer service (info@lipoid-kosmetik.com).

Safety

Toxicology:

- Non-phototoxic (OECD 432)
- Non-irritating for skin (SPT, single patch test), when tested at a concentration of 10 % on 10 volunteers
- Non-sensitizing for skin (HRIPT, repeated human patch test), when tested at a concentration of 10 % on 50 volunteers
- Non-mutagenic and non-pro-mutagenic (Ames test – OECD 471)
- No allergens (as per current EU Cosmetic Regulation)
- Slightly irritating for eyes (HET CAM), when tested at a concentration of 5 %

Regulatory

INCI	Maltodextrin, Nasturtium Officinale Flower/Leaf/Stem Extract, Hydrogenated Lecithin, Equisetum Arvense Extract, Urtica Dioica (Nettle) Leaf Extract, Sodium Chloride • For full and up-to-date INCI listing please see proprietary composition declaration.
EU Cosmetic Regulation	The product complies to the EU Cosmetic Regulation (EC) No 1223/2009.
China INCI	All INCIs are listed in the current Inventory of Existing Cosmetic Ingredient China (IECIC).
EU Reach	The product, i.e. its substances conform to the Regulation (EC) No 1907/2006.
China Reach	All ingredients conform to the legislation of China REACH.
CMR	The product does not contain substances classified as CMR under the Regulation (EC) No 1272/2008 (CLP).
ABS	The plant materials used fully comply with the requirements of Access and Benefit Sharing (ABS) as derived from the Nagoya Protocol and its corresponding national legislation. Detailed information about the compliance is available (info@lipoid-kosmetik.com).
COSMOS	HerbaShield URB is a raw material approved by ECOCERT Greenlife that conforms to the COSMOS Standard.
Natural/organic	Nettle (Urtica Dioica) Leaf and Horsetail (Equisetum Arvense) are from organic farming. HerbaShield URB can be used in natural, organic and natural/organic certified cosmetics.
Halal	All ingredients conform to HALAL requirements, considering the following: Traces of ethanol remaining in HerbaShield URB at the end of the manufacturing process are technically unavoidable. The ethanol is plant-derived and non-GMO. Its concentration is less than 0.1 % at a maximal recommended use level of 3 % HerbaShield URB in the final cosmetic product.
Vegan	The product can be used in vegan formulations.
Non-GMO	The product is non-GMO. It meets the non-GMO standards set by Regulation (EC) No 1829/2003.
Palm oil	The product does not contain palm (kernel) oil or its derivatives.

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