

Delivering "true to nature" hydrophilic plant profiles. Cellular Extraction harnesses the species' water-soluble blueprint of phyto-compounds and their derivatives (the entourage), in their synergistic relationships, as they exist in the cell. Extracted rapidly under high pressure, we maintain the molecules' natural integrity. Committed to conscious manufacturing, Cellular Extracts are created using purified, deionised, rain-harvested water and less plant material than past processes to produce a natural extract, that is eco-sustainable, traceable to source, transparent in composition – delivering the brilliance of nature.

NATIVE EXTRACTS first latched its breakthrough in harnessing the natural vitamin C molecule in an aqueous format. And has advanced its ability to do so in its nutraceutical range. The NE Kakadu Plum Cellular Extract delivers stable, natural, active and biological/recycling vitamin C in a water-soluble format. This botanical species, is the highest source of vitamin C, offering other natural molecules in a water-soluble format that contain natural antioxidant capacity.

Kakadu Plum also known as Gubinge, Billygoat Plum or Murunga, is a native tree from Australia, the fruit is wild harvested by Indigenous communities exclusively in the Kimberleys, Northern Territory and Arnhem Land. Indigenous Australians have used this fruit extensively for food, its healing properties and traditional medicine.

Cellular Extracts will power your products with plant-based compounds and connect your brand to nature.

In pursuit to learn more about this species profile, we have listed publicly available, peer reviewed research on these compounds below. This is for educational purposes and is not based on clinical trials of the Cellular Extract. Extracts deliver natural molecules and connects your brand to nature.

WATER-SOLUBLE PHYTO-COMPOUNDS

VITAMIN C [ASCORBIC ACID/ASCORBATE]

• Key factor to sustain skin vitality, firmness and elasticity

Acts as co-factor to the enzymes that stabilise the collagen molecule tertiary structure, with both decreased total synthesis and decreased crosslinking when vitamin C is absent¹

Essential to the stimulation of collagen gene expression, as well as its own transporters^{2,5}

Potential stimulator of skin collagen and elastin production in the treatment of wrinkled and stretch-marked skin, as well as to prevent formation of dermal scars and keloids⁶⁻⁸

Enhances the differentiation and viability of epidermal keratinocytes along with associated lipids both *in-vitro* and *in-vivo*, with markedly improved structural organisation of skin's outermost layer, accompanied by enhanced barrier function and reduced water loss⁹⁻¹⁴

Optimises the formation of dermal-epidermal interface, required for controlling epidermal growth and differentiation¹⁵

Orally administered vitamin C to human subjects increases the radical scavenging activity of the skin, enhanced with higher doses of vitamin C¹⁶

Suggested for administration during pregnancy to prevent adversities such as pelvic organ prolapse and stress urinary incontinence¹⁷

• Potent disease prevention properties and skin ailments alleviation e.g. acne

Required for optimal function of numerous enzymes regulating the transcription of proteins involved in endothelial function and proliferation, thus determined critical for survival^{18,19}

Reverses the effect of membrane channel blockers to allow adequate synthesis and deposition of collagen²⁰ and maintain the integrity of the extra cellular matrix²¹

Shown to suppress the growth of acne-causing bacteria including antibiotic-resistant strains²², and exert *in-vitro* and *in-vivo* excellent efficacy in prevention and treatment of acne vulgaris²³

Evidently beneficial to reduce allergic contact dermatitis response resulting from the use of cosmetic products in sensitised individuals^{24,25}

• Significantly supports wound healing

Increases proliferation and migration of dermal fibroblasts as well as the expression of self-renewal genes, functions vital for effective wound healing^{8,15,26,27}

Improved the appearance of fine surgical scars by topical use in combination with silicon gel²⁸

May result in faster recovery of skin integrity and strength across the wound dose dependently²⁹

• Protects skin from UV irradiation and photoaging via various mechanisms

Effectively antagonises UV-induced cell death through epigenetic regulation^{30,31}

Capable of additive protection against acute UVA and UVB photodamage by increasing resistance to free radical generation and cell death³², hence suggested for use in combination with sunscreen to maximise photoprotection³³⁻³⁵

Demonstrated to provide both objective and subjective improvement in photodamaged facial skin³⁶⁻³⁸

Protects skin from UVA+UVB-mediated phototoxic reactions and therefore shows promise as a broad-spectrum photoprotectant^{39,40}

Increases physical UV absorbers skin deposition without increasing their skin permeation, thereby improving accumulation and dispersion of sunscreen agents on the skin and enhancing their efficacy⁴¹

Acts as a reducing agent at various oxidative steps of melanin, hence inhibiting excessive pigmentation caused by UV-exposure⁴²

• Suppresses skin hyperpigmentation and promotes skin whitening

Reduces melanin content *in-vitro* via antioxidative mechanisms, improving endogenous defence capacity and inhibiting pro-inflammatory radical formation⁴³

Shows significant skin lightening effect *in-vivo*⁴⁴ and proved to be efficacious in dealing with post inflammatory hyperpigmentation⁴⁵

Found to mute the responses of pigment synthesising cells and the immune system to UV radiation, in combination with vitamin E, through ability to suppress inflammation and its associated cascade of mediators⁴⁶

• Possesses anti-aging effects and longevity benefits

Daily consumption of a high dose of vitamin C resulted in enhanced anti-senescence and anti-atherosclerotic effects via an improvement of blood health and anti-inflammatory gene expression through antioxidant and anti-glycation⁴⁷

Extended the life span of multi-cellular organisms by altering biological processes involved in anatomical structure development and antioxidative capacity^{48,49}

Increased the life span in an animal model via modulating serum cytokines and alleviating stress markers in liver⁵⁰

GALLIC ACID [GA]

• Effective skin lightening agent

Exhibits >50% inhibition of melanin synthesis and tyrosinase activity¹⁻⁴

Facilitates a decrease in pigmentation-related proteins and further activation of melanogenesis inhibitory proteins⁵

• Remarkable anti-inflammatory anti-allergenic properties

Inhibits a range of pro-inflammatory markers' expression and activity^{6,7}

Blocks histamine release thereby alleviating allergic response⁸



PRODUCT

NE Kakadu Plum Cellular Extract
Concentrate: ANE0013
Standard 1:10: ANE0013-10

POTENTIAL APPLICATIONS

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Want to work with natural molecules as they exist in the cell?

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CELLULAR
EXTRACTION®



- **Potent skin antioxidant and radical scavenging attributes**
Shown significant in-vitro free radical scavenging activity⁹
Prevented pesticide- and herbicide-induced alterations in inner tissues^{10,11}
Combats skin oxidative stress within outermost skin layer, reducing lipid peroxidation by up to 46%¹²
- **Regulates skin aging, exerts anti-wrinkle activity and maintains under-eye sensitive skin**
Found to decrease dryness, skin thickness and wrinkle formation via suppression of extracellular matrix breakdown and positive regulation of elastin¹³
Protects from sun damage to skin by reverting back altered levels endogenous defence enzymes and skin collagen content, and maintaining adequate activity of MMPs gelatinase and collagenase to keep extracellular matrix's vitality¹⁴
Reduces dark circles and puffiness via anti-inflammatory effects on keratinocytes and by improving drainage function of lymphatic vessels¹⁵
- **Improves wound healing and attenuates scarring**
Identified as potential therapeutic agent for treatment of keloids by supporting collagen deposition¹⁶
Inhibits hypertrophic scar inflammation by attenuating the associated signalling pathways¹⁷

TRYPTOPHAN

- **Prevents numerous health conditions**
Crucial for adequate synthesis of vitamin B3 (niacin) in liver. Vitamin B3 deficiency (aka Pellagra) is associated with various skin disorders, alongside digestive and mental health abnormalities^{1,2}
Key precursor to serotonin biosynthesis in the brain, a neuro-transmitter primarily controlling mood and appetite, in which deficiencies are strongly related with the occurrence of fibromyalgia, sleep disorders, anxiety and depression³⁻⁸
Involved in the mechanism of gastroprotection and ulcer healing⁹
- **Broad anti-aging and lifespan benefits**
Assists in maintaining full body homeostasis by keeping levels of serotonin, melatonin and vitamin B3, consequently reducing oxidative stress, inflammation and cholesterol levels^{10,11}
Breakdown of Tryptophan ultimately leads to NAD+ biosynthesis, a vital cofactor and potent immune regulator^{12,13}

FLAVONE-C-GLYCOSIDE

- **Anti-aging benefits by contributing to natural antioxidant capacity**
Protects tissues under oxidative stress by ameliorating the activities of endogenous defence enzymes (SOD, CAT, GSH-Px)¹
Displayed notable radical scavenging activity through in-vitro methods against superoxide and peroxide radicals, as well as xanthine oxidase and urease inhibition²⁻⁴
- **Promising anti-inflammatory agents**
Protects the integrity of barrier between blood vessels and surrounding tissue by inhibiting excessive permeability, expression of cell adhesion molecules and downstream inflammatory response⁵
Results indicate for significant inhibition of pro-inflammatory markers' expression *in-vitro* and *in-vivo* up to 98% and 66% respectively^{6,7}
Possesses suppressive effect on *in-vitro* inflammatory mediator expression production^{8,9} as well as on in-vivo airway inflammatory precess^{10,11}

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NATIVE EXTRACTS

PRODUCT

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Concentrate: ANE0013
Standard 1:10: ANE0013-10

POTENTIAL APPLICATIONS

- Active mists
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- Day, night creams, serums
- Eye contour products, serums
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- Skin radiance, luminosity

Possibilities are based on compound information and not on the extract information. This information is to assist you in your R&D trial.

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Add at the end phase, <40°C
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CLEAN & FUNCTIONAL - delivering the brilliance of natures design

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CELLULAR[®] EXTRACTION



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KAKADU PLUM

AUSTRALIAN NATIVE EXTRACTS

Terminalia ferdinandiana Fruit Extract

THE MOST POWERFUL KAKADU PLUM EXTRACT

STABLE, 'ACTIVE' NATURAL VITAMIN C

Our body is constantly exposed to an adverse environment that is typically associated with the production of reactive oxygen species (ROS). Enzymatic and non-enzymatic scavenging systems effectively reduce the damage caused by these oxidative toxicities. Ascorbic acid, a potent antioxidant, is synthesised in plants and micro-organisms and then transported to other cell compartments to eliminate ROS. However, the human body cannot produce vitamin C, hence it must be orally or topically supplemented.

NATURAL [WHOLE] VS SYNTHETIC PURIFIED

Although animal studies have found no significant differences between conventional natural and synthetic vitamin C bioavailability (Carr et-al, 2013), over expression of its accompanying (reducing) enzymes effectively enhanced tolerance to oxidative stress (Chang et-al, 2017). As these enzymes hold unique capacity to regenerate vitamin C from its oxidised states, topical applications of whole plant extract containing vitamin C along with its complete entourage are far superior to those of purified ascorbic acid, where the active form keeps being irreversibly hydrolysed. This natural balance could only occur by keeping the integrity of the raw material through CELLULAR EXTRACTION, the science of BIOMIMICRY.

FEATURING ENHANCED STABILITY

Vitamin C is highly prone to photo-degradation as well as water and metal induced dissipation, hence stability greatly relies on its containing matrix along with the ability to reversibly reduce undesired oxidation during storage and consumption.

NATIVE EXTRACTS have perfected processes to harness vitamin C by focusing on delivering the full scope of plant constituents in a water deprived aqueous solution, allowing for maximum circulation of the active and volatile natural ascorbic acid.

VITAMIN C IS FUNDAMENTAL TO THE HUMAN BODY

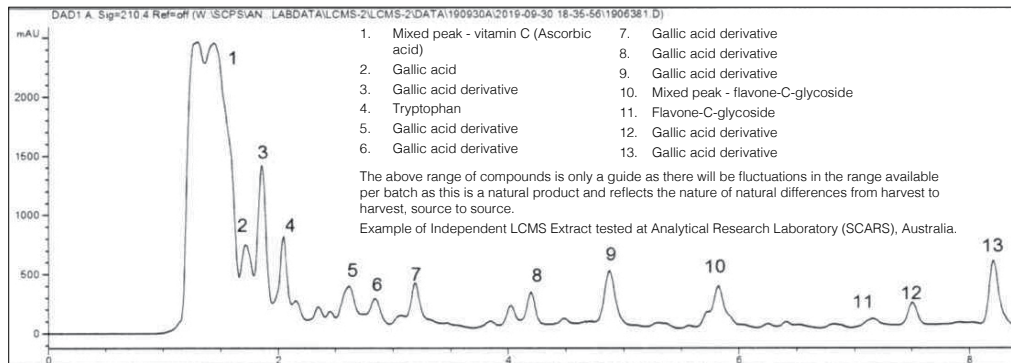
- Required for the growth and repair of tissues across the entire body¹
- Plays a vital role in collagen synthesis, an important protein used to make skin, cartilage, tendons, ligaments and blood vessels²
- Plays a significant role in photo-protection and is integral for healing wounds, and for repairing and maintaining bones and teeth^{1,3}
- Highly effective in wrinkle reduction and skin firming by increasing elastin production⁴
- Reduces hyper pigmentation by interacting with the active site of the enzyme tyrosinase⁵

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Explore the range of True to Nature plant extracts
delivering the water-soluble plant profiles of phyto-compounds
suspended in a liquid matrix



Reduce your carbon footprint. Extracted using rain-harvested water

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EC: Not allocated

Cellular Extraction delivers the natural water-soluble compounds of a species. To assist your ingredient research we identified publicly available information on these compounds from other sources and their potential uses. Information is not based on specific clinical trials of the Cellular Extract.

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