

# QUEEN GARNET

## ADVANCED FRUIT AND VEGETABLES

### Prunus salicina Fruit Extract

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, rainharvested 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.

The Queen Garnet Plum is a patented non-native Australian species, originally endemic to Japan, but supercharged its profile as a result of adapting to the harsh conditions of the pristine Australian environment. Globally recognised and highly prized as a unique species and source of anthocyanins, this species offers exciting new possibilities for benefits in Cosmetic, Nutraceutical, natural Pharmaceutical, Food and Beverage industry sectors.

Introducing the world's first NE Queen Garnet Cellular Extract offering a powerhouse of antioxidants and an interesting profile of anthocyanins, chlorogenic acid, rutin, epicatechin, quercetin and more.

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 connect your brand to nature.

## WATER-SOLUBLE PHYTO-

### COMPOUNDS

#### ANTHOCYANINS

- **Skin lightening / Depigmentation potential** Human tissue *in-vitro* studies show inhibition of Tyrosinase activity, a key enzyme in melanogenesis process leading to pigmentation<sup>1</sup>. Studies show decreased melanin formation topically<sup>1</sup>. Inhibit pigmentation format, blocks the process.
- **Photo-aging protection** Demonstrated to significantly reduce UVA<sup>-13,14</sup> and UVB-induced DNA damage, large variety of photo-aging and, protein oxidation and lipid peroxidation within reconstituted human skin tissue, dermal fibroblasts and keratinocytes<sup>15,20</sup>. Reduces redness and sensitivity by inhibiting overexpression and activity of matrix metalloproteinases (MMPs) e.g. collagenase, elastase, thereby protecting the cells from UV-induced apoptosis<sup>15-20</sup>, presumably through its UVB-dominant absorption capacity reported at approximately 46%<sup>21</sup>.
- **Anti-aging / Conditioning / Inhibits cell damage** Potential anti-aging benefits through protective anti-proliferative effects against damaged skin cells, and uncontrolled division thereof<sup>6,14</sup>. Protect cells from premature death/apoptosis induced metastasis control<sup>3-6,14</sup>. Protection against oxidative stress improving skin longevity and maintains healthy condition<sup>6,14</sup>.
- **Maintains skin viability, collagen and elastin support** Protects collagen-producing cells (fibroblasts) against oxidative damage via inhibition of peroxy radicals production<sup>8</sup>. Captures the environmental and internal heavy metals that induce aging<sup>8</sup>. Reduces amounts of damaging free radicals, lipid breakage (peroxidation), and DNA damage to prolong good skin, improving flexibility and functionality<sup>9</sup>.
- **Anti-wrinkle and skin flexibility – anti-glycation activity** Prevents glycation process and protein damage<sup>30</sup>. Alleviate tissue inflammation, reduced activation of stress cascades to improve skin cell function<sup>32</sup>.
- **Potent antioxidant properties – improved skin life cycle, function & quality** Supported significant decrease of induced DNA damage and intracellular ROS, along with an increase in cellular defence enzyme<sup>22,23</sup>. Holds antioxidant capacity towards oxygen radicals<sup>24,25</sup> and oxidised ferric species<sup>26-28</sup>, scavenging activity towards superoxide<sup>29</sup> and peroxynitrite<sup>30</sup>, inhibition of human LDL oxidation<sup>31</sup> and lipid peroxidation<sup>30</sup>, pro-antioxidant activity in form of ability to bind heavy metals such as iron, zinc and copper<sup>32</sup> and induction of intracellular defence enzymes<sup>33,34</sup>.
- **Anti-inflammatory activity – inflammation reduction<sup>35,42</sup>** Reported to inhibit the expression of cytokines (molecules being produced in response to stress and

imitation) such as cyclooxygenase-2 (COX-2) and inducible nitric oxide (iNOS) protein, involved in many inflammatory processes, by suppressing NF- $\kappa$ B through down regulation of MAPK-mediated pathways<sup>35,38</sup> with almost no change to the antioxidative status *in-vivo*<sup>39,40</sup>.

#### QUERCETIN

- **Anti-inflammatory activity via radical scavenging, inflammatory messengers and signalling pathways' inhibition** Inhibitor of tumour necrosis factor-alpha (TNF- $\alpha$ ) production *in-vitro*, as well as of numerous inflammatory mediators release<sup>1,2-5</sup>. Inhibits epidermal and liver cyclooxygenase (COX) and lipoxygenase (LOX) activities<sup>6,7</sup>. Exerts broad scavenging activity against reactive oxygen and nitrogen species<sup>4,8,9</sup>.
- **Maintains skin-tissue vitality both by moderating sun exposure impact and exerting anti-glycation activities** Elevates epidermal cells' (keratinocytes) intracellular antioxidant activity following UVA irradiation, hence suppresses UVA-induced cell death (apoptosis) in human<sup>20,11</sup> and animal<sup>12</sup> keratinocytes. Significantly prevents UVB-induced glutathione (GSH) depletion and tissue degradation in animal model<sup>13</sup>. Produce sun protection factor (SPF) values similar to those of the classical sunscreen substances benzophenone<sup>31</sup> and homosalate (a reference filter used to establish FDA standards<sup>15</sup>). Deemed a desirable compound for incorporation into sunscreen formulations due to excellent UVA/UVB absorption capacity<sup>16</sup>. Found to significantly reduce secretion of tissue-degrading enzymes upon UVA or UVB exposure, thereby maintaining skin integrity via topical application<sup>17</sup>. Represents a useful stabilising additive for the formulation of effective broad-spectrum sunscreens containing widely used and readily available filters<sup>18</sup>.
- **Skin appearance enhancer via anti-glycation and potential longevity improvement** Presents good penetration of outermost skin layer (*Stratum Corneum*) and retention in viable epidermis when incorporated into emulsions<sup>19,20</sup>. Dose dependently increases production of hyaluronic acid in epidermis cell line, elevating skin moisture and improve facial wrinkles<sup>21</sup>. Inhibits AGEs formation via chelating catalytic metal ions and entrapment of both glycation mediators and reactive oxygen species<sup>22,23</sup>. Shown to suppress the levels of AGEs and fructosamines<sup>24</sup>. Identified as proteasome activator with antioxidant properties that consequently influence cells' lifespan, survival and viability, while creating a rejuvenating effect over senescent human fibroblasts<sup>25</sup>. Associated with under-eye area skin rejuvenation by



#### PRODUCT

NE Queen Garnet Cellular Extract  
Concentrate: ANE0616  
Standard 1:10: ANE0616-10

#### POTENTIAL APPLICATIONS

- Body clays, muds, scrubs
- Body moisturisers, milks, lotions
- Day, night creams, lotions
- Eye contour products, serums
- Face masks, scrubs
- Face strips, patches
- Generally, suits most cosmetic applications
- Hair, scalp, products, treatments
- Hand, feet creams
- Hand liquid soaps, towellettes, wipes
- Hyperpigmentation creams, serums
- Men, teenage products, serums
- Sun care, after sun products

#### POSSIBILITIES TO TRIAL

- Anti-aging care, antioxidant care
- Anti-glycation, barrier function
- Blemish care (acne prone skin)
- Collagen, elastin support
- Dark pigmented areas, exfoliation
- Fine lines and wrinkles
- Hair growth, maintenance, protection
- Hair maintenance, protection
- Inflammation reduction
- Reactive skin conditions (dermatitis, psoriasis, rosacea)
- Skin conditioning, firmness, hydration
- Skin radiance, luminosity
- Skin improvement, wound healing

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

#### PRODUCTION

Water/Glycerin Extract  
Added at the end phase, <40°C  
Ethanol option available

#### PLANT PART: ORIGIN

Fruit : Australia

#### USAGE GUIDE

Concentrate: 1.0 - 2.0%  
Standard 1:10: 3.0 - 6.0% Wash on/off formulations  
24 months unopened from date of manufacture

#### COMPLIANCE

INCI: Prunus salicina Fruit Extract  
CAS: 1214268-59-3  
EC: Not allocated

Cellular Extraction delivers natural water-soluble compounds from 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.

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

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taking a role in improving dark circles and coarse wrinkles<sup>26</sup>

- **Prevents hair loss and promotes hair fibre proliferation**

Demonstrated to provide effective treatment for alopecia areata (AA) as well as reduce spontaneous onset of AA in preclinical trials<sup>27</sup>  
Shows protective effects against induced toxicity and hair cell damage *in-vivo*<sup>28</sup>

Effectively and positively affects human scalp in clinical trials, presenting 214% hair growth compared to control and 94% growth compared to commercially available treatment (Minoxidil), in combination with EGCG<sup>29</sup>

- **Potentially holds skin whitening effect**

Reducing levels of the melanogenic tyrosinase *in-vitro*, associated with, but not limited to the activation of proteasome<sup>25</sup>

#### RUN

- **Multifunctional activity as antioxidant, anti-inflammatory and organo-protective agent – maintaining vascular integrity and well being<sup>44</sup>**

- **Holds skin whitening effects**

Anti-melanogenic activity via inhibition of tyrosinase and related proteins<sup>57</sup>

- **Completely inhibits hair follicle cell death and halts regression**

When applied in combination with accompanying compounds<sup>8</sup>

- **Improves skin elasticity and reduces wrinkle formation through anti-glycation activities**

With high antioxidant activity, it effectively inhibited the generation of pre-AGE products and exhibited inhibitory effects on the formation of other intermediates and AGEs<sup>9</sup>

Evidently penetrates outermost skin layer (Stratum Corneum)<sup>10</sup> and inhibits glycation of type I collagen *in-vitro*<sup>11</sup>

Increased elasticity and decreased the length, area and number of wrinkles<sup>12</sup>

Holds strong affinity to suppress the formation of both initial and advanced stages of the glycation process as well as collagen crosslinking<sup>13-15</sup>

- **Effective and safe compound to be used in multifunctional sunscreens**

Robustly elevated clinical solar protection factor (SPF) by about 70% when combined into a formulation containing UV filters (sunscreens agents)<sup>16</sup>  
Produce SPF values similar to that of homosalate (a reference UV filter used to establish FDA standards)<sup>17</sup>

#### EPICATECHN

- **Protects from skin aging due to sun exposure**

Outstanding antioxidants<sup>11,16</sup>

Demonstrated to protect skin cells against UVB-induced damage by modulating cellular defence enzymes' activity<sup>3</sup>

Shown to inhibit skin proteins' and tissue degradation caused by damaging UV exposure<sup>4</sup>

Prevents collagen breakdown by inhibiting collagenase by up to 70%<sup>5</sup>

- **Maintains skin flexibility and prevents wrinkle formation**

Exerts significant inhibitory effect on skin structural proteins glycation<sup>6</sup>, acting indirectly on the crosslinking process<sup>7,17</sup>

- **Exerts significant wound healing properties and alleviates swelling**

Reduces swelling and exudates, accelerates wound closure and enhances amounts of fibroblasts and collagen fibres in affected region<sup>18,20</sup>

Inhibits swelling (edema) and associated pain<sup>5,8</sup>

- **Counteracts acne via broad spectrum anti-inflammatory properties**

Suppresses inflammation by inhibiting expression and secretion of inflammatory mediators<sup>9,15,16,21-23</sup>

Reduces sebum secretion in topical treatment of acne<sup>10</sup>

#### FLAVONOID GLYCOSIDES

- **Large group of natural substances with various phenolic structures derived from the plant world, well known for their beneficial countless effects on health<sup>12</sup>**

Considered indispensable component in a variety of nutraceutical, pharmaceutical, medicinal and cosmetic applications

Possess anti-oxidative, anti-inflammatory, anti-microbial and anti-aging properties coupled with their capacity to modulate key cellular enzyme function

Hold various protective roles against numerous human diseases

#### PHENOLICS

- **Key class of large and diverse dietary compounds, natural antioxidants<sup>12</sup>**

- **Exhibit a variety of functions, including: Antioxidant activity – neutralise or capture toxic and mutagenic species constantly forming in the skin as by product of metabolism<sup>36</sup>**

**Anti-inflammatory properties** – Responding to the exposure to external factors which may cause various types of damage, internal injuries, irritation or allergies<sup>39</sup>

**Antimicrobial action** – possess potent antifungal, antiviral and antibacterial activity, as an alternative to broad spectrum antibiotics which may lead to negative influence on skin microflora and resistance of many bacterial strains<sup>34</sup>

**Anti-aging benefits:**  
Skin cell renewal – can slow down or even reverse the decreasing capacity of epidermis to replace and detoxify dead cells, which rapidly declines with age<sup>15,17</sup>

Stimulation of collagen and elastin synthesis – facilitate maintenance of proper skin structure and integrity of skin tissue, thereby stalling fine line and wrinkle formation<sup>32,3</sup>

Attenuation of pigment (melanin) production in epidermis – excessive production of melanin caused predominantly by UV exposure, as well as drugs, chemicals and particular disease states, may lead to dermal disorders<sup>24-30</sup>

Protection from sun damage (UV radiation) – Restores the antioxidant defence properties of the skin and attenuates the accumulation of DNA alterations<sup>31,35</sup>

**Preventing or attenuating the progression of certain skin disorders** – such as, but not limited to, psoriasis<sup>37,38</sup>, rosacea<sup>39</sup>, a acne<sup>40-42</sup>, allergies<sup>43,44</sup>

**Enhanced healing of incised and chronic wounds and burns** – by accelerating the following cascade of regenerative processes<sup>48-51</sup>

#### CHLOROGENIC ACID (CGA)

- **Potent antioxidant and chelating agent stable under UV irradiation**

Can serve as topical agent due to not degrading under UVA or UVB irradiation<sup>1</sup>

Significantly attenuated the accumulation of aluminium-based biotoxicity and associated oxidative stress<sup>2</sup>

Provides effective defence against hydrogen-peroxide oxidative stress to protect tissues from adverse effects<sup>3</sup>

#### LONG TERM SKIN LIGHTENING POTENTIAL

- **Long term skin lightening potential**

Natural suppressor of pigment formation<sup>4</sup>

#### ACCELERATES WOUND HEALING

- **Accelerates wound healing**



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Reduce your carbon footprint. Extracted using rain-harvested water

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Supports wound healing in a dose-dependent manner by enhancing antioxidant defence, fibroblast migration to affected area and angiogenesis (blood vessel formation)<sup>57</sup>

## • Possesses significant anti-inflammatory activities

Suppresses signalling pathways involved in inflammatory response and cell death (apoptosis) by decreasing secretion of pro-inflammatory cytokines<sup>69</sup>  
Reversed inflammatory cytokine (IL-1 $\beta$ )-mediated downregulation of collagen II<sup>10</sup>

## • Exerts anti-wrinkle activity and maintains skin firmness and flexibility

Inhibits dermal glycation, thus preventing formation of altered rigid protein-sugar crosslinked structures<sup>11,12</sup>  
Stimulates up to 2-fold increase in synthesis of collagen, elastin and associated polysaccharides<sup>13</sup>  
Decreases levels of matrix degrading enzymes (MMPs) and increases collagen and hyaluronic acid contents<sup>34</sup>

## • Alleviates skin irritation and redness

Prevents UV-induced Erythema (skin reddening)<sup>15</sup>

## ORGANIC ACIDS

- Immense group of multifunctional ingredients encompassing phenolic, carboxylic, phenol-carboxylic and sulfonic acids, as well as weaker acids containing enol, alcohol and thiol residues.
- In addition to their antimicrobial and anti-acne<sup>1</sup> properties, organic acids can also provide skin discoloration benefits<sup>1</sup>, exfoliating<sup>2</sup>, emollient<sup>3</sup>, moisturising<sup>4</sup> and conditioning properties.
- Internally, organic acids are known for its antioxidant and scavenging capacities against naturally occurring radicals, suppression of inflammatory agents<sup>5</sup> and positive effects on microbiome<sup>6</sup>.

## SUGARS

### • Usefulness humectants

Hydrophilic, water soluble and in most cases hygroscopic (absorbs water vapour from the air) because their hydroxyl groups form hydrogen bonds with water molecules, resulting in their hydration and dissolution into the hosting skin<sup>1</sup>

## AMINO ACIDS

- Amino Acids (AAs) are the building blocks of proteins and peptides (proteins too small to make up tertiary structures). More than 300 AAs have been described, however only 20 AAs take part in protein synthesis. There are 11 non-essential AAs which our body is able to synthesise, and 9 essential AAs which we must supplement from our diet<sup>1</sup>
- AAs are generally known to regulate gene expression<sup>2</sup> and protein metabolism e.g. skin collagen synthesis rates<sup>3</sup>, enhance wound healing<sup>4,5</sup>, exert antioxidant activities<sup>6</sup>, strengthen the immune system<sup>7</sup>, improve skin barrier function<sup>8</sup>, maintain skin vitality as anti-aging agents<sup>9</sup>, contribute to hair viability by constituting the building blocks for hair strand synthesis alongside multiple aspects of hair maintenance and protection<sup>10,15</sup>, and play a pivotal role in disease prevention<sup>16,18</sup>

## REFERENCE

Peaks identified and verified by an independent Australian Government body, Southern Cross University. SDS and Technical Specification available on request.

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## PRODUCT

NE Queen Garnet Cellular Extract  
Concentrate: ANE0616  
Standard 1:10: ANE0616-10

## POTENTIAL APPLICATIONS

- Body clays, muds, scrubs
- Body moisturisers, milks, lotions
- Day, night creams, lotions
- Eye contour products, serums
- Face masks, scrubs
- Face strips, patches
- Generally, suits most cosmetic applications
- Hair, scalp, products, treatments
- Hand, feet creams
- Hand liquid soaps, towellettes, wipes
- Hyperpigmentation creams, serums
- Men, tennage products, serums
- Sun care, aftersun products

## POSSIBILITIES TO TRIAL

- Anti-aging care, antioxidant care
- Anti-glycation, barrier function
- Blemish care (acne prone skin)
- Collagen, elastin support
- Dark pigmented areas, exfoliation
- Fine lines and wrinkles
- Hair growth, maintenance, protection
- Hair maintenance, protection
- Inflammation reduction
- Reactive skin conditions (dermatitis, psoriasis, rosacea)
- Skin conditioning, firmness, hydration
- Skin radiance, luminosity
- Skin improvement, wound healing

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

## PRODUCTION

Water/Glycerin Extract

Add at the end phase, <40°C

Ethanol option available

## PLANT PART: ORIGIN

Fruit : Australia

## USAGE GUIDE

Concentrate: 1.0 - 2.0%

Standard 1:10: 3.0 - 6.0% Wash

on/off formulations

24 months unopened from date of manufacture

## COMPLIANCE

INCI: Prunus salicina Fruit Extract

CAS: 1214268-59-3

EC: Not allocated

Cellular Extraction delivers natural water-soluble compounds from 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.

CLEAN & FUNCTIONAL – delivering the brilliance of nature's design

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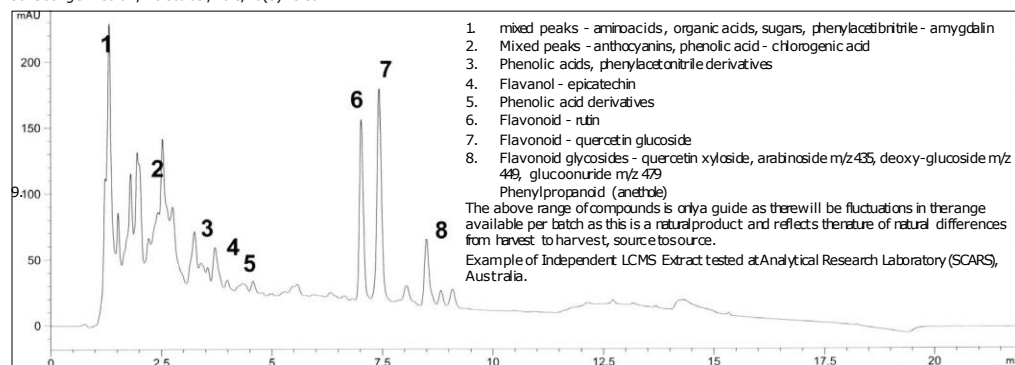


# QUEEN GARNET

ADVANCED FRUIT AND  
VEGETABLES

Prunus salicina Fruit Extract

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## PRODUCT

NE Queen Garnet Cellular Extract  
Concentrate: ANE0616  
Standard 1:10: ANE0616-10

## POTENTIAL APPLICATIONS

- Body clays, muds, scrubs
- Body moisturisers, milks, lotions
- Day, night creams, lotions
- Eye contour products, serums
- Face masks, scrubs
- Face strips, patches
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- Collagen, elastin support
- Dark pigmented areas, exfoliation
- Fine lines and wrinkles
- Hair growth, maintenance, protection
- Hair maintenance, protection
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- Skin conditioning, firmness, hydration
- Skin radiance, luminosity
- Skin improvement, wound healing

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

## PRODUCTION

Water/Glycerin Extract

Add at the end phase, <40°C

Ethanol option available

## PLANT PART: ORIGIN

Fruit : Australia

## USAGE GUIDE

Concentrate: 1.0 - 2.0%

Standard 1:10: 3.0 - 6.0% Wash

on/off formulations

24 months unopened from date of manufacture

## COMPLIANCE

INCI: Prunus salicina Fruit Extract

CAS: 1214268-59-3

EC: Not allocated

Cellular Extraction delivers natural water-soluble compounds from 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.

## Forging the future of A-Beauty : POWERED BY NATURE

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