

Product for hair care, anti-oxidant, skin brightening effects

Jeju Changpo



*Traditional hair treatment from
Jeju Island*

the garden of
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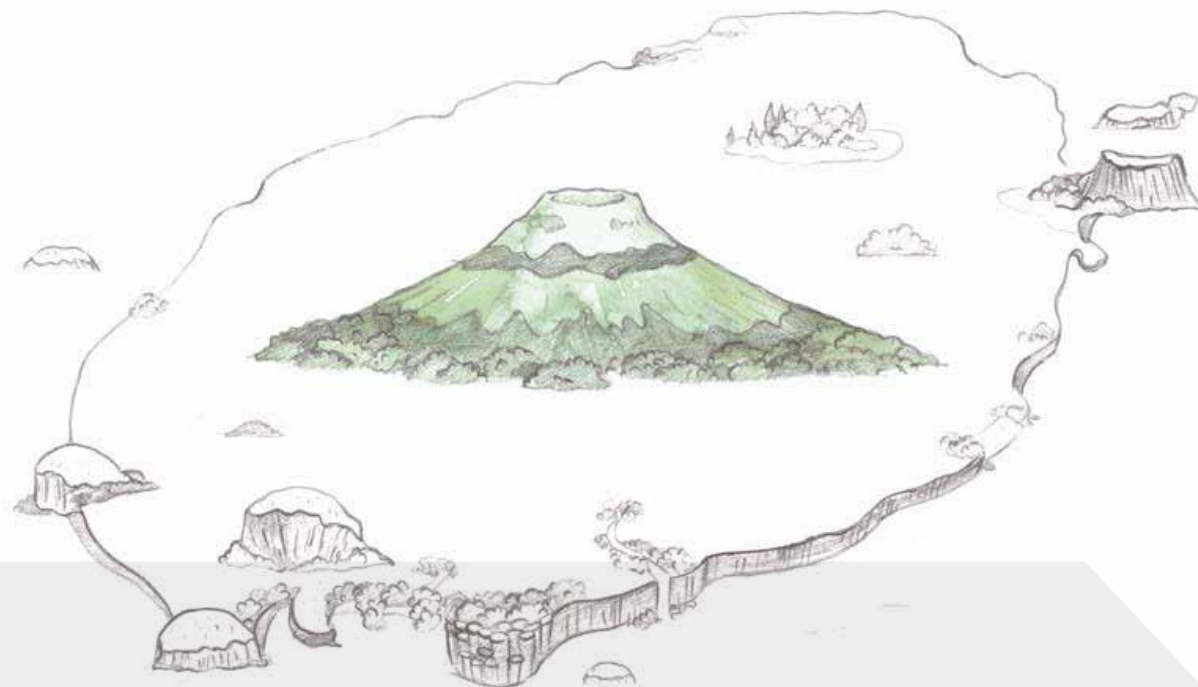
Jeju Island

Jeju is the largest island situated in southern coast of Korea.

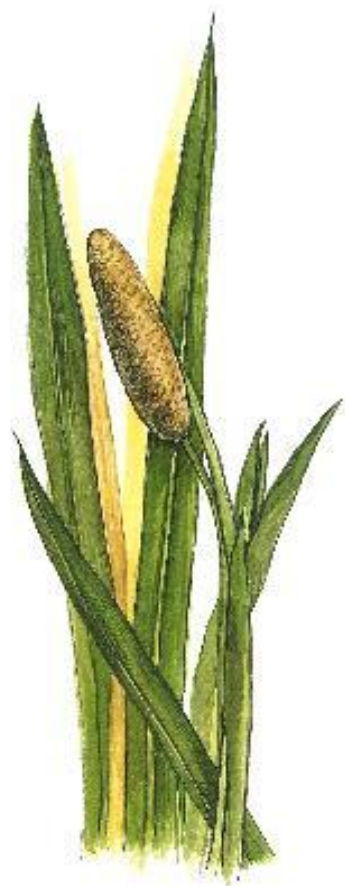
This island is considered as the most clean and beautiful area in Korea. It is a volcanic island with Halla Mountain in the center created by volcanic eruptions about 2 million years ago.

Jeju volcanic island and lava tubes are designated as the first World Natural Heritage Sites in Korea.

Due to its unique environment, the island has many endemic plants especially in Halla Mountain where there are about 1,800 endemic plant species as well as diverse alpine plants.



Plant Story



Acorus calamus, commonly known as sweet flag or calamus, is a tall perennial wetland monocot with scented leaves and more strongly scented rhizomes, which can be found in Korea, Japan, China, and other countries. *A. calamus* is widely employed in modern herbal medicine as an aromatic stimulant and mild tonic. It is also used externally to treat skin eruptions, rheumatic pains, hair and neuralgia. Especially, *A. calamus* root boiled water used for hair in a special day called 'Dano' in Korea.

Traditional Use in Korea: Dano Festival



'Dano', also called '*Surit-nal*', is a Korean festive holiday that falls on the fifth day of the fifth month of the lunar Korean calendar. Traditionally, Koreans believed that Dano is the most active day of the year, and people prayed full of energy for a good harvest and peace and to remove bad spirits. People cooked and ate special rice cakes called surichitteok, enjoyed folk games such as swing jumps and Korean style wrestling, and prayed for fruitful year under the jujube tree.

Traditional Use in Korea: Dano Festival



Traditionally on 'Dano', Korean women washed their body and hair with calamus-boiled water, believing that it would make the skin and hair soft and shiny. They also thought that the ghosts around them would be removed by taking a bath with this water.



in vitro Efficacy Evaluation

🔬 Anti-oxidant Effect

- ROS Generation Inhibition Activity
- DPPH Scavenging Activity

🔬 Skin Brightening Effect

- Melanin Synthesis Inhibition Activity

🔬 Hair Growth Effect

- Hair Cell Proliferation Activity

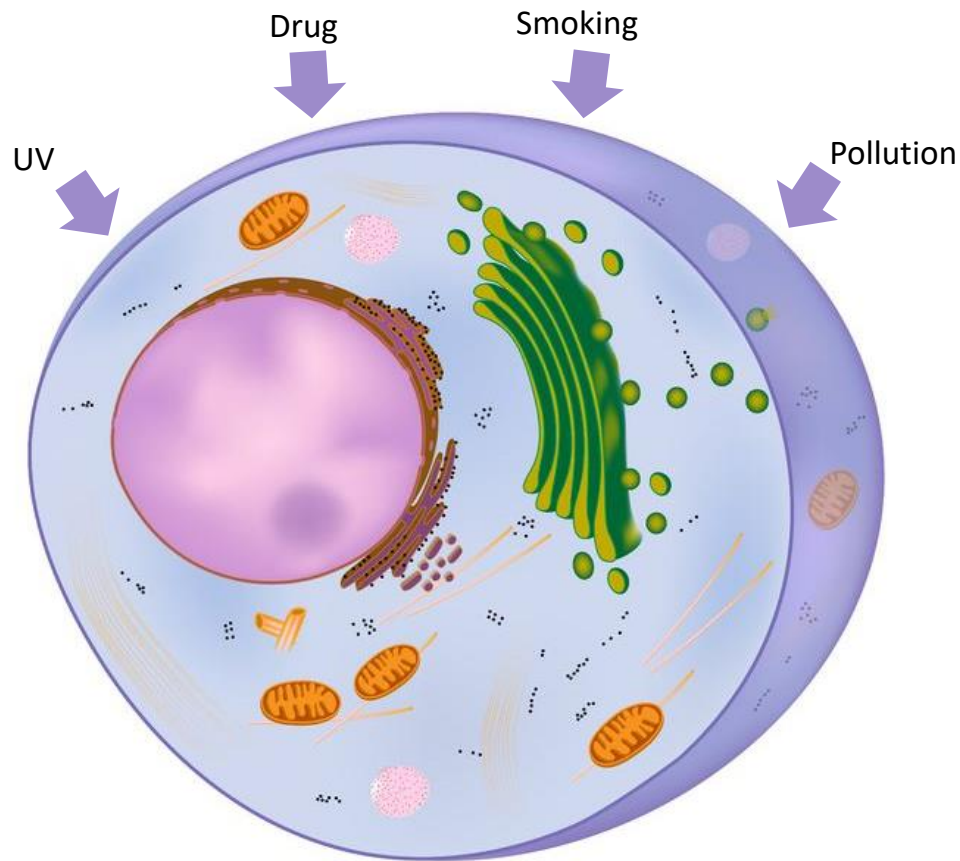
in vivo Efficacy Evaluation

🔬 Hair Damage Alleviation



Oxidative Stress

Reactive Oxygen Species (ROS) can be increased by



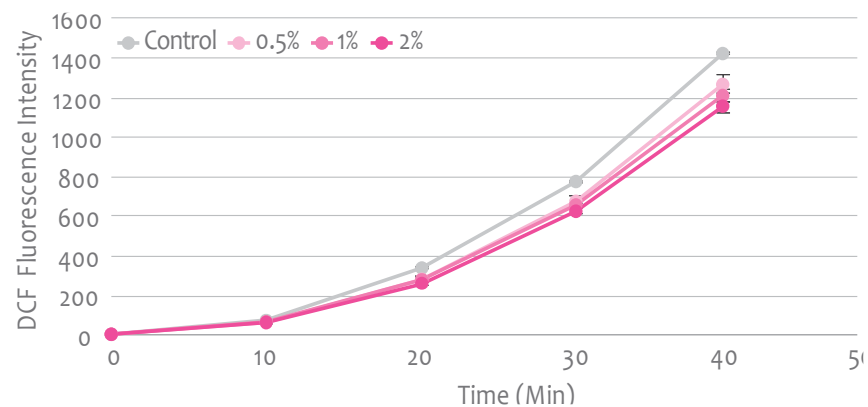
Intracellular ROS may induce

- DNA damage
- Lipid peroxidation
- Amino acid oxidation: protein damage
- Oxidation of co-factors: enzyme inactivation
- Chronic inflammation

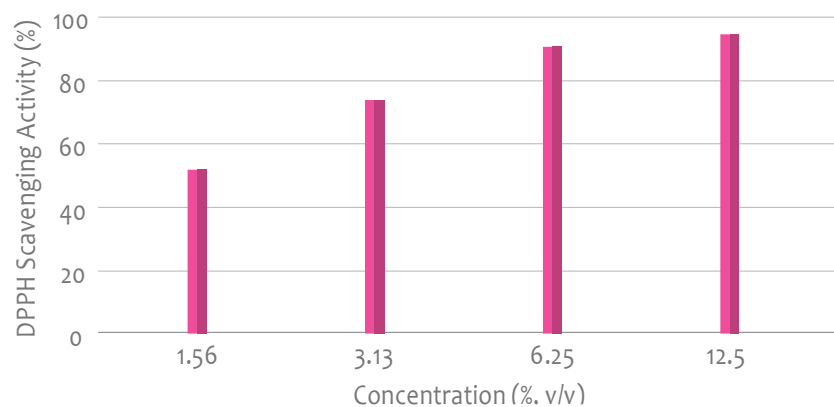


in vitro Efficacy Evaluation: Anti-oxidant Effect

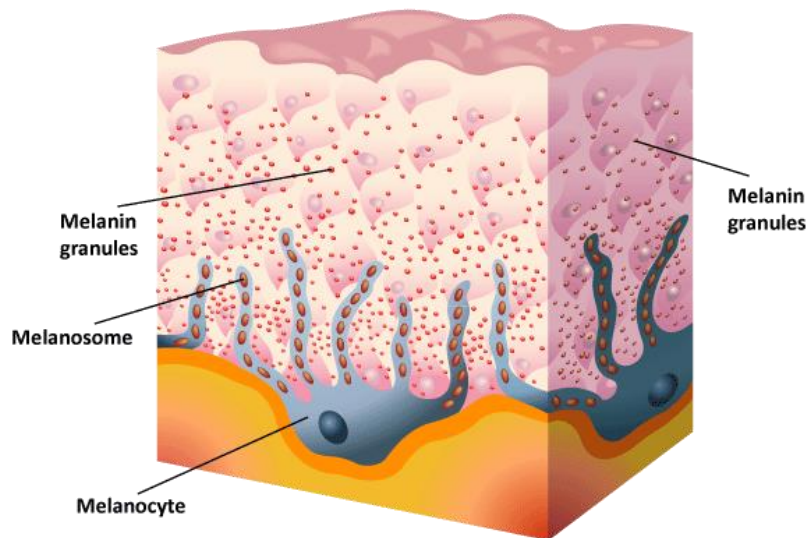
ROS Generation Inhibition Activity in Human Fibroblasts



DPPH Scavenging Activity

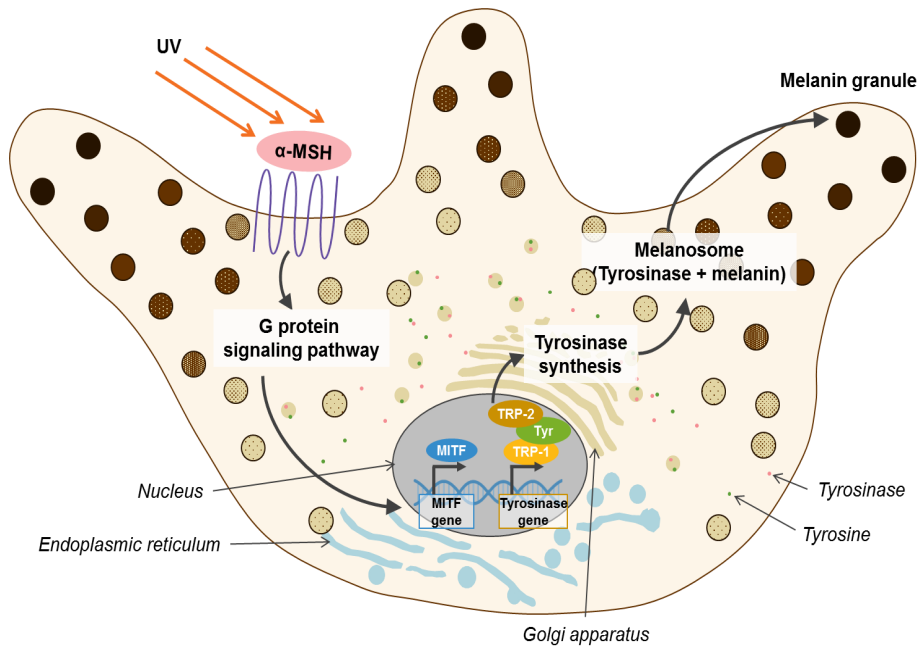


Skin Pigmentation



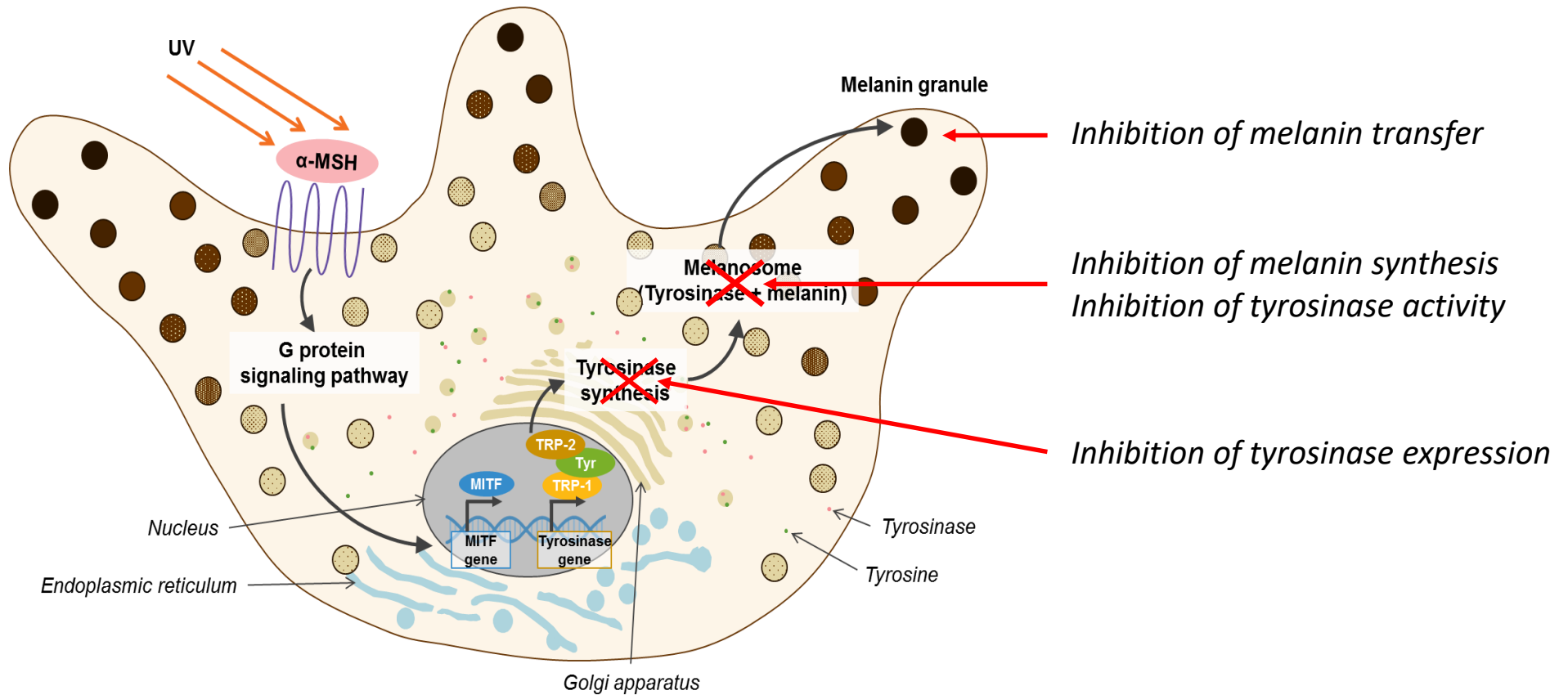
Melanin plays an important role in protecting human skin from the harmful effects of UV sun radiation and in scavenging toxic drugs and chemicals. Melanin is synthesized in melanocytes located at the dermal/epidermal border. Epidermal melanocytes occur at an approximate ratio of 1:10 among basal keratinocytes and distribute the melanin they produce to approximately 40 overlying suprabasal keratinocytes via their elongated dendrites and cell-to-cell contacts. Skin pigmentation problems, such as melasma, freckles, age spots and dark spots, are caused by the abnormal accumulation of melanin in keratinocytes.

Melanin Synthesis



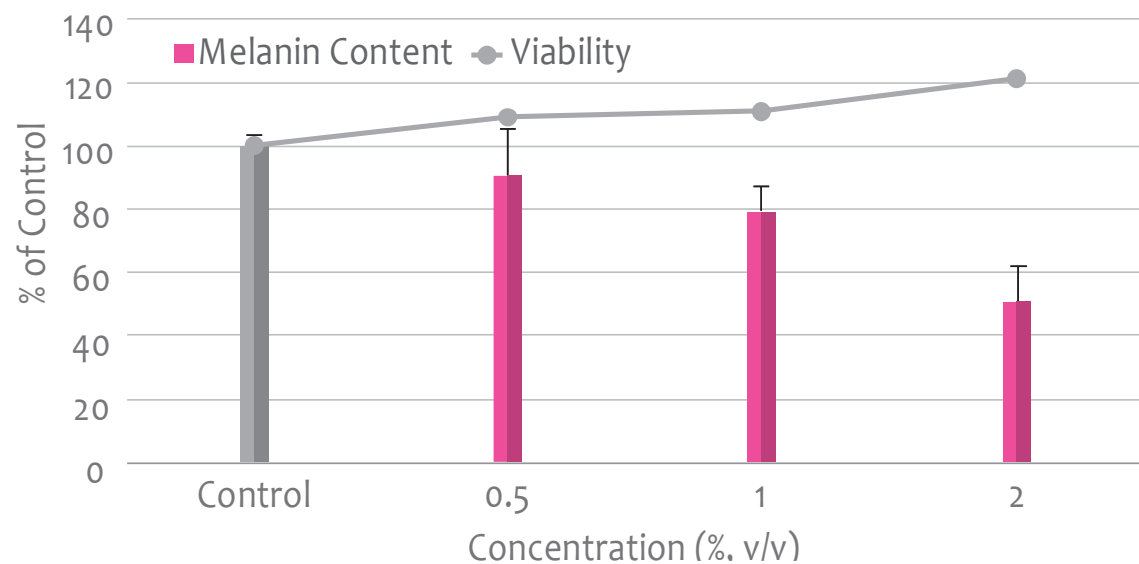
Upon exposure to UV radiation, DNA damage triggers cytokines, growth factors and other inflammatory factors to stimulate melanin production. Melanin is synthesized in melanocytes through a series of oxidative reactions involving amino acid tyrosine in the presence of the enzyme tyrosinase. This leads to the production of melanin, and melanin granules synthesized in the melanocytes are transferred to keratinocytes.

Skin Brightening Action

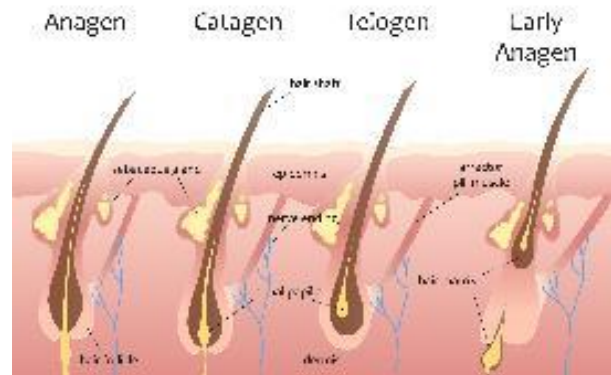


in vitro Efficacy Evaluation: Skin Brightening Effect

🔬 Melanin Synthesis Inhibition Activity in Melanocytes

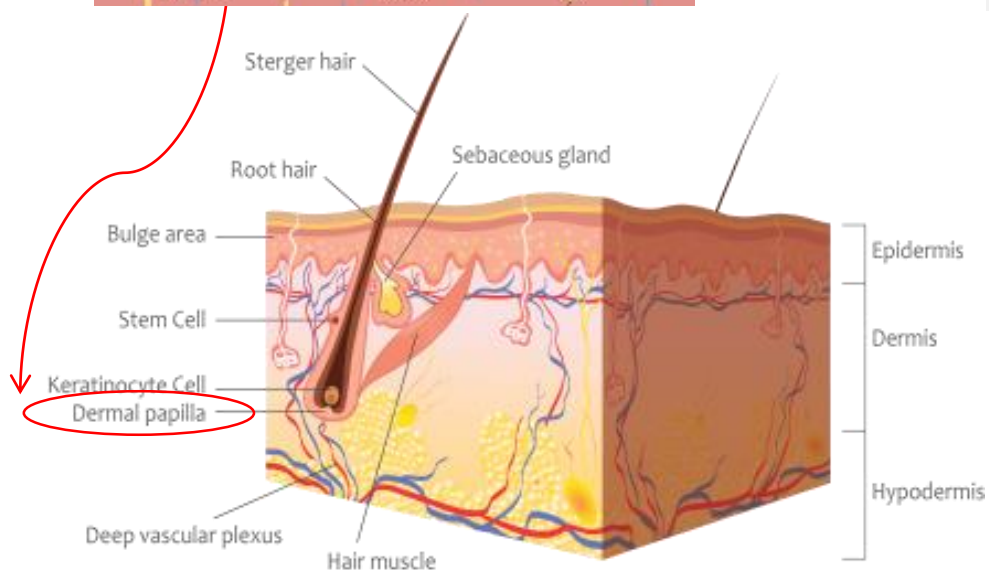


Hair Care: Structure of Hair Follicle



Hair Growth Cycle

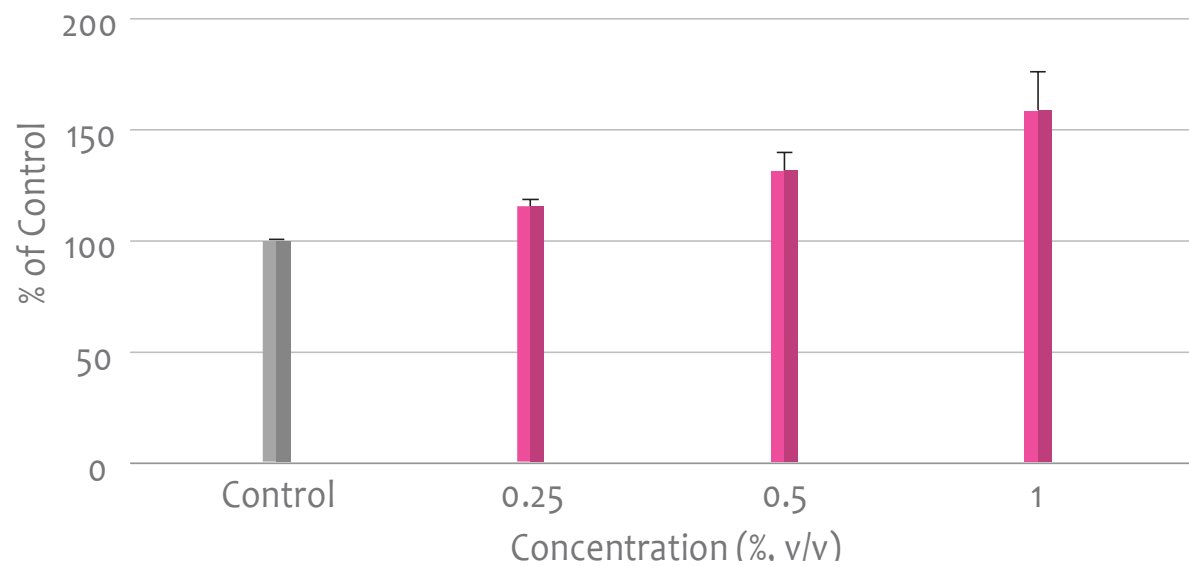
- Anagen: Hair grows actively
- Catagen: Hair follicles shrinks and detaches
- Telogen: Hair growth stops completely
- Early anagen: Old hair falls out and new hair grows



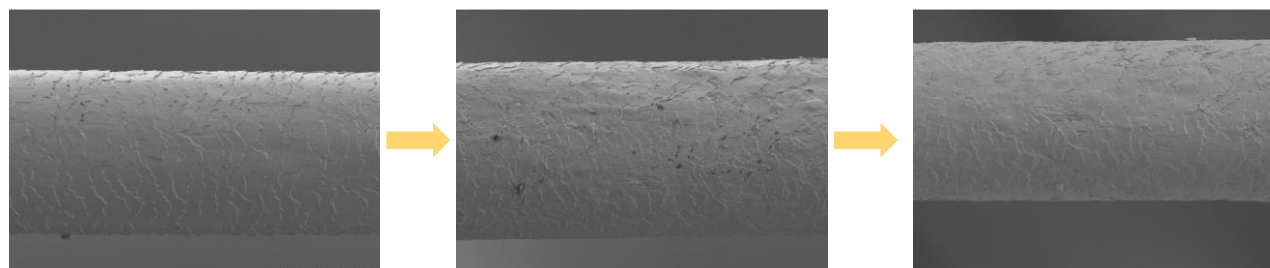
Human Dermal Papilla Cells (HDPCs) comprise a group of specialized fibroblasts. HDPCs play a critical role in regulating hair follicle development and periodic regeneration. Human hair growth has a unique repetitive cycle composed of the anagen, catagen, and telogen phases.

in vitro Efficacy Evaluation: Hair Growth Effect

•• Hair Cell Proliferation Activity in Human Dermal Papilla Cells



in vivo Efficacy Evaluation: Hair Damage Alleviation



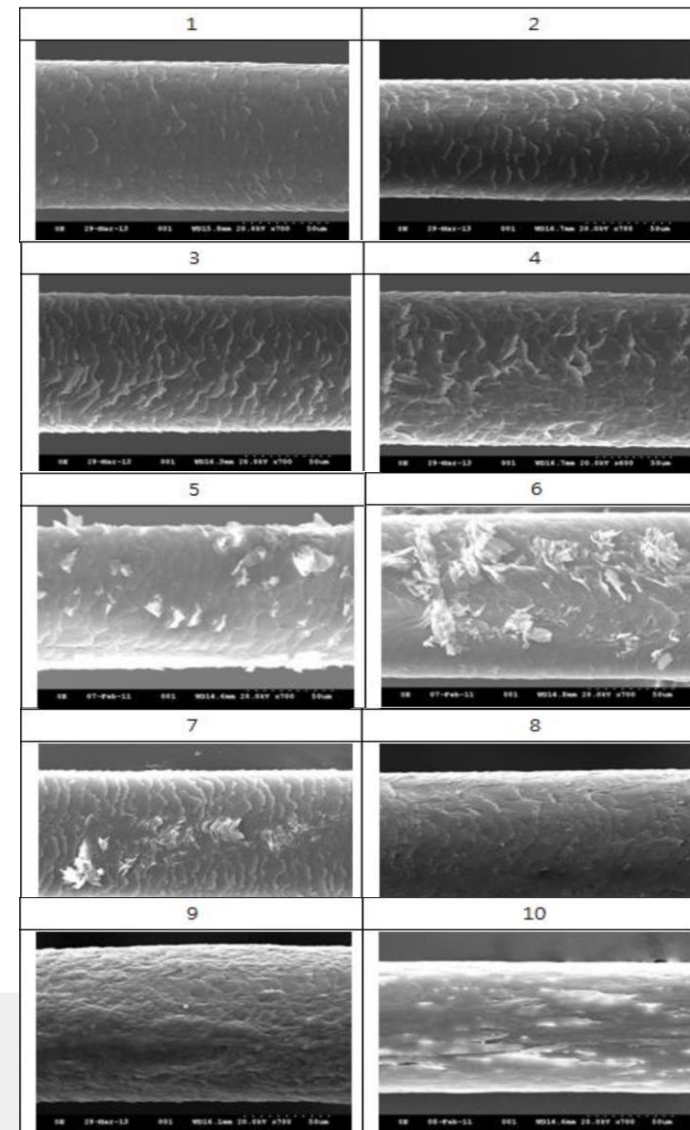
Unprocessed Hair

Damaged Hair

Treated with Test Item

- **Subjects:** 6 ~ 6.5 g of artificial hair Tresses (20 ea for control & 20 ea for treatment)
- **Test Item:** Hair essence containing 3% of Jeju Changpo
- **Application:** 0.60 ~ 0.65 g of test item on each hair tress
- **Measurements:** Before and after application of the test item
- ✓ **% improvement in hair damage** = $(\text{Grade before product use} - \text{Grade after product use}) \times 100 / (\text{Grade before product use})$
- **Environmental Condition:** 20 ~ 24°C, 50±10% Relative Humidity
- **Evaluation:** The researchers assessed SEM images and graded each tress according to hair damage grade.

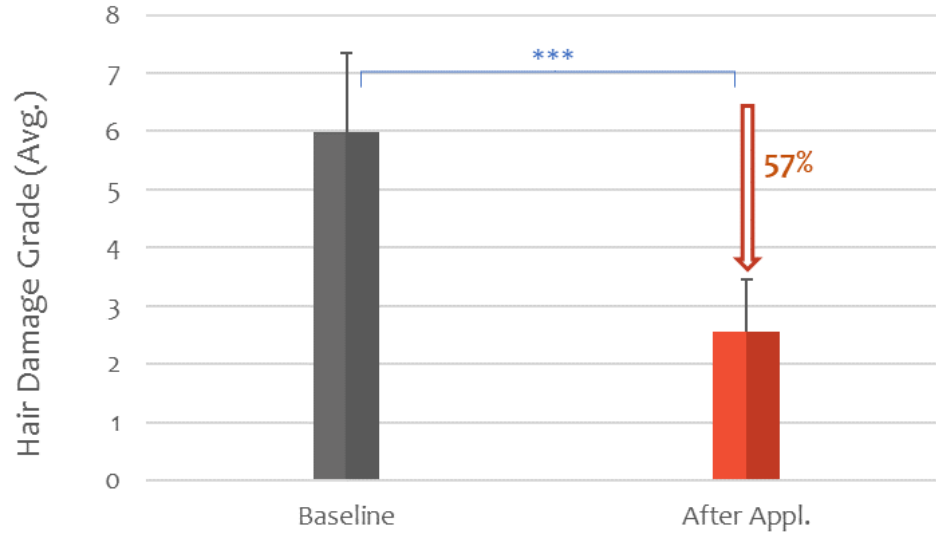
* Hair Damage Grade



in vivo Efficacy Evaluation: Hair Damage Alleviation

Assessment of Hair Damage

Probability p (Paired t -test, Significant: $***p < 0.001$)



#	Baseline	After Appl.
1		
2		
3		

Reference: Study on Hair Color and Elasticity

•• Hair Color and Elasticity

- Analysis on color tones and elasticity after the treatment of water extract of *Acorus calamus* on bleached hair of 20-30 aged women in Korea
- Analysis on surface observation after the treatment of *A. calamus* (SEM Photographs x 1,000)

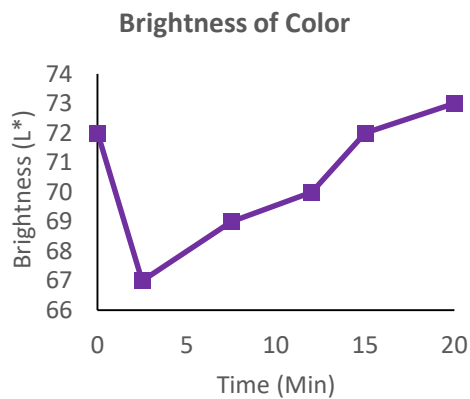


Fig.1. Improvement of color tones after the treatment of *A. calamus*.

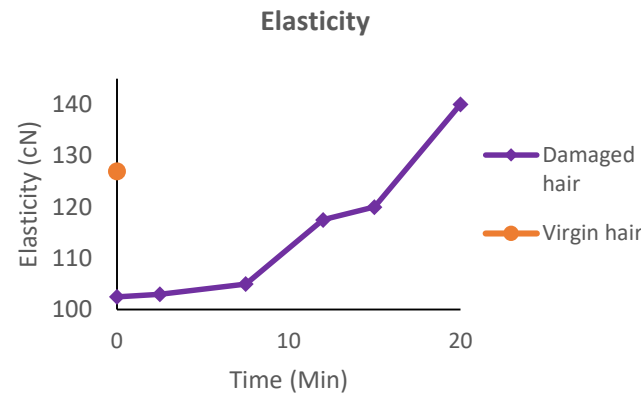


Fig.2. Improvement of elasticity after the treatment of *A. calamus*.

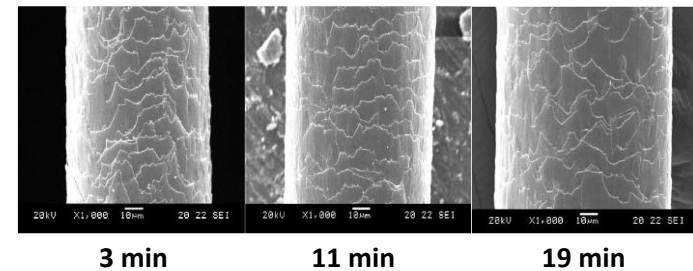
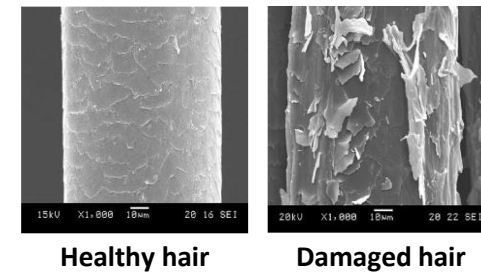



Fig.3. Improvement of hair surface after the treatment of *A. calamus* (SEM Photographs × 1,000).

Product Information

- **Product Name:** Jeju Changpo(PD)-RSPO  , Jeju Changpo(GOL)-RSPO
- **INCI Name:** Acorus Calamus Root Extract (China Complaint)
- **Dosage:** 1 – 3%
- **Formulation:** Add to the formulation when the temperature is lower than 55°C. Recommended to add after the cooling process.
- **Storage:** Avoid direct light or UV. Keep it in a cool and dry area.

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"We are always upgrading to serve you better"

