GREEN TECHNOLOGY FOR HEALTHY BEAUTY

Marine, Oriental and Functional Ingredients
**Marine Actives**

Various algae have special properties which are useful for humans. The high contents of vitamins, minerals and proteins, antioxidants are of particular interest. Their antioxidant properties protect against aggressive molecules, which attack us due to environmental stresses.

**Technology Platforms**

**Cultivation & Bio-fermentation**

We cultured marine organism to control safety and constant quality of raw material at own plantation and seaweed farm in Jeju Island, produced Korean seaweed.

**Development Process**

ATHENA develop technology is based on screening, eco-friendly extraction method, isolation and purification in vitro and in vivo test.

**Scientific Validation**

ATHENA has been developed innovative raw materials with qualified R&D team, high-performance equipment, and using strict in vitro & in vivo certified method and institute by Korea Food and Drug Administration.

**ATHENA Co., Ltd. is**

Develop company of innovative raw materials and components for healthy beauty of mankind.
We research and investigate for traditional oriental herbs and marine organism to obtain active ingredients and new compounds in harmony with nature and environment.
Preservative System of Wet Tissue
Athena preservative system ingredient
- Cosmetic ingredient dictionary registration
- Total ingredient from natural resources or food additive
- No paraben, IPBC, phenoxy ethanol, BKC, CMIT, PHMB, MIT etc.

Antimicrobial test

- Control: Wet tissue on the market (CPC, Sodium Benzoate)
- Strain: A.niger

Natural Surfactant from Saponin complex
Saponins are natural surfactants found in many plants. Saponin is derived from the Latin sapo meaning "soap," which refers to its utility in cleaning

Foam stability

Saponin complex extract have higher foam stability than quillaja saponin and tea saponin.

Test – Remove eye makeup

It can be used to remove eye makeup and face makeup as well.

AT Soothing 37
What is AT Soothing 37 (Panax notoginseng)
- Referred to as pseudoginseng, and in Chinese it is called 田七 (Tianqi), Tienchi ginseng, san qi or sanchi, three-seven root.
- Potent hepatoprotective effects from injury induced by d-galactosamine and lipopolysaccharide.

In vitro efficiency of AT Soothing 37

The level of serum IgE was decreased in AT Soothing 37 compared to dexamethasone IgE assay, and may be used as functional material for suppression of anti-inflammation in industry.

Korean Yeast / Rice Bran ferment
What is rice bran

- Rice bran is the hard outer layers of rice grain
- Rice bran may prevent skin aging and coloring via anti-oxidative effect and inhibitory activity of tyrosinase.

Korean yeast / Rice bran ferment
- Rice bran fermented showed higher inhibitory activity than rice bran in auto-oxidation. Rice bran fermented reduced intracellular tyrosinase activity about 80%
- Rice bran fermented could be used as a useful antioxidant and Whitening agent.
### Marine Product

<table>
<thead>
<tr>
<th>PLANT TAXONOMY</th>
<th>PRODUCTS</th>
<th>ORIGIN</th>
<th>INCI NAME</th>
<th>MECHANISMS OF ACTION</th>
<th>PROPERTIES</th>
<th>APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Green Algae (Chlorella)</strong></td>
<td>AT Chlorella U</td>
<td>Seawater from Korea (94%)</td>
<td>Ulva lactuca Extract</td>
<td>Inhibits MMP and harmful effect of UV</td>
<td>Protects against UV-induced skin damage</td>
<td>Anti-aging, UV protection</td>
</tr>
<tr>
<td></td>
<td>AT Chlorella P</td>
<td>Nori seaweed from Japan, produced in Korea (94%)</td>
<td>Porphyra tenera Extract</td>
<td>Free radical scavenger</td>
<td>Reduces antioxidant defenses</td>
<td>Anti-bacterial effect, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Chlorella U</td>
<td>Ulva lactuca from Korea (94%)</td>
<td>Ulva lactuca Extract</td>
<td>Prevents oxidation reactions</td>
<td>Reduces skin damage caused by UV B</td>
<td>Anti-bacterial effect</td>
</tr>
<tr>
<td></td>
<td>AT Chlorella C</td>
<td>Codlmm Fragile from Korea (94%)</td>
<td>Codlmm Fragile Extract</td>
<td>MMP inhibitor</td>
<td>Protects against UV-induced skin damage</td>
<td>Anti-bacterial effect, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Monoroph L</td>
<td>Alaria Esculenta and Undaria Pisiformis Extract</td>
<td>Undaria Pisiformis Extract</td>
<td>Free radical scavenger</td>
<td>Prevents aging</td>
<td>Anti-bacterial effect, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Monoroph L</td>
<td>Laminaria japonica Extract</td>
<td>Laminaria japonica Extract</td>
<td>Beta-carotene inhibitor</td>
<td>Prevents aging</td>
<td>Anti-bacterial effect, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Monoroph L</td>
<td>Kelp from Ireland</td>
<td>Laminaria dictyonei Extract</td>
<td>Antioxidant effects against protoporphyrinomics with a MIC value of 0.16 mg/mL</td>
<td>Improves acne skin</td>
<td>Anti-bacterial effect, Anti-inflammatory</td>
</tr>
<tr>
<td></td>
<td>AT Monoroph E</td>
<td>Ecklonia cava from Japan, produced in Korea (54%)</td>
<td>Ecklonia cava Extract</td>
<td>Inhibits the growth of porphyrinovironutin</td>
<td>Protects against UV-induced skin damage</td>
<td>Anti-bacterial effect, Anti-inflammatory</td>
</tr>
<tr>
<td></td>
<td>AT Monoroph S</td>
<td>Sargassum fusiforme from Korea (54%)</td>
<td>Sargassum fusiforme Extract</td>
<td>Prevents oxidation reactions and antagonists</td>
<td>Prevents aging</td>
<td>Anti-inflammatory</td>
</tr>
<tr>
<td></td>
<td>AT Monoroph H</td>
<td>Haliotis fasciata from Korea (85%)</td>
<td>Haliotis fasciata Extract</td>
<td>Inhibits MMP and harmful effects of UV</td>
<td>Prevents aging</td>
<td>Anti-inflammatory</td>
</tr>
<tr>
<td><strong>Brown Algae (Phaeophyta)</strong></td>
<td>AT Rhodoscella P</td>
<td>Phaeophyta from Korea (94%)</td>
<td>Phaeophyta from Korea (94%)</td>
<td>UV-A and UV-B reactions activate TGF-β and cytokine synthesis</td>
<td>Regulates aging skin</td>
<td>Anti-inflammatory, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Rhodoscella C</td>
<td>Irish moss from Canada (94%)</td>
<td>Chondria crispata (Cystocarps) Extract</td>
<td>Free radical scavenger</td>
<td>Protects skin against UV</td>
<td>Anti-inflammatory, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Rhodoscella G</td>
<td>Gelidium cartilagineum from Korea (94%)</td>
<td>Gelidium cartilagineum Extract</td>
<td>MMP inhibitor</td>
<td>Protects skin against UV</td>
<td>Anti-inflammatory, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Rhodoscella S</td>
<td>Goniopora Venusia from Korea (94%)</td>
<td>Goniopora Venusia Extract</td>
<td>Antioxidant activity</td>
<td>Protects skin against UV</td>
<td>Anti-inflammatory, Antioxidant activity</td>
</tr>
<tr>
<td></td>
<td>AT Mucilaginean</td>
<td>Hydrococcus Pluvialis from Korea</td>
<td>Hydrococcus Pluvialis Extract</td>
<td>Contains antioxidants</td>
<td>Protects skin against UV</td>
<td>Anti-inflammatory, Antioxidant activity</td>
</tr>
</tbody>
</table>

*Note: The table includes various marine ingredients and their respective mechanisms of action, properties, and applications. The applications are categorized under Anti-aging, UV protection, Moisturizing, Anti-inflammatory, and Whitening.*