PRODUCT LIST

1. Natural Actives Lists

2. Natural Preservatives for Cosmetics & Food
   ★ Edible natural preservatives

3. Natural Anti-Acne Extract
   ★ Effective more than tea tree oil by clinical evidence

4. Natural Sunscreen (Water soluble)
   ★ No synthetic organic sunscreen Free

5. Natural Sanitizing Ingredient
   ★ Chlorine Free Edible Sanitizer

6. Natural Anti-Dandruff Extract
   ★ Alternatives of the Zn-Pyrithione

7. Anti-Irritant for Objective Irritation
   ★ Zero inflammation to cytokine signal reaction

8. Anti-Irritant for Subjective Irritation
   ★ Reduce irritation like itching, stinging

9. Extract Fermented by Lactobacillus
## Natural Actives Lists-I

<table>
<thead>
<tr>
<th>Group</th>
<th>Name</th>
<th>INCI Name</th>
<th>Physical test</th>
<th>Product</th>
</tr>
</thead>
</table>
| Natural Preservative   | MSE-G  | Scutellaria Baicalensis Root extract Glycyrrhiza Glabra(Licorice) root extract Lactobacillus Ferment Glycerin | - Appearance : Light yellow Liquid  
- pH : 6.0 ± 1.0  
- Soluble: in Water(little Turbid)  
- Application: Natural cosmetics  
- Dosage : 2% | ![MSE-G](image) |
| Natural Preservative   | MEG-PG | Lactobacillus Ferment Camellia Sinensis Leaf extract Citric Acid Malic Acid | - Appearance: Bright White Powder  
- pH : 3.0 ± 1.0  
- Soluble: in Water  
- Application: Natural cosmetics  
Food grade  
- Dosage : 0.01~0.3%(food)  
1.5~2.0%(cosmetics) | ![MEG-PG](image) |
| Natural Preservative   | MCE-F  | Lactobacillus Ferment Cinnamomum Zeylanicum Bark extract Glycyrrhiza Glabra(Licorice) root extract Glycerin | - Appearance: Light Yellow Liquid  
- pH : 3.5 ± 1.0  
- Soluble: in Water  
- Application: Beverage, Source, Ham, Noodle, etc  
- Dosage : 0.03~0.3% | ![MCE-F](image) |
| Anti-Acne Extract      | BCX-CA | Chamaecyparis Obtusa Leaf extract Lactobacillus Ferment Citrus Unshiu Fruit Extract Glycyrrhiza Inflata Root Extract Vitis Vinifera (Grape) Seed Oil | - Appearance: Light Brown Liquid  
- pH: 7.5 ± 1.0  
- Soluble: in Water  
- Application: Anti-Acne  
- Dosage : 2~5% | ![BCX-CA](image) |
| Natural Sunscreen      | BHC-S  | Arachis hypogaea fruit Extract Oryza sativa bran oil Extract Centella asiatica Extract Ecklonia kurome Extract | - Appearance : Light Gray Powder  
- pH : 3.5 ± 1.0  
- Soluble : in Oil  
- Application : Natural sunscreen formular  
(Synthetic organic sunscreen free)  
- Dosage : 3~7% | ![BHC-S](image) |

**BST Inc.**  
B-104, Urim lions valley 2, 146-8 Sangdaewon-dong, Jungwon-gu, Seongnam-si, Gyeonggi-do, Republic of Korea  
Tel. +82-02-573-8575  
Fax. +82-31-8018-2136  
e-mail. szhen@ibst.kr  
www.ibst.kr
# Natural Actives Lists - II

<table>
<thead>
<tr>
<th>Group</th>
<th>Name</th>
<th>INCI Name</th>
<th>Physical test</th>
<th>Product</th>
</tr>
</thead>
</table>
| Natural Sanitizer                          | MLE-T         | Glycyrrhiza Glabra (Licorice) root extract        | - Appearance: Pale Yellow Liquid  
- pH: 3.5 ± 1.0  
- Soluble: in Water  
- Application: For hand sanitizer, wet tissue, infants products and anti-microbial spray  
- Dosage: 2~5%    | ![MLE-T](image) |
| Natural Anti-Dandruff Extract              | BCX-D         | Chamaecyparis Obtusa Leaf extract  
Cordyceps sinensis Extract  
Lactobacillus Ferment | - Appearance: Light brown Liquid  
- pH: 7.5 ± 1.0  
- Soluble: in Water  
- Application: Anti-Dandruff  
- Dosage: 2~5%    | ![BCX-D](image) |
| Natural Anti-Irritant For Objective Irritation | Bio Tranquillizer - Oil part (BT-O) | Phytosterols  
Linum Usitatissimum seed oil  
Glycyrrhizic acid | - Appearance: Light Yellow Semisolid  
- pH: 6.0 ± 1.0  
- Soluble: in Oil  
- Application: Anti-inflammation, Anti-Allergy, Anti-oxidant  
- Dosage: 1~2%    | ![Bio Tranquillizer - Oil part](image) |
| Natural Anti-Irritant For Subjective Irritation | Bio Tranquillizer - Water part (BT-W) | Solanum tuberosum (Potato) pulp extract  
Cordyceps militaris mycelium extract  
Centella asiatica leaf Extract  
Magnolia lilflora flower Extract  
Angelica keiskei leaf/Stem Extract | - Appearance: Light Brown Liquid  
- pH: 5.5 ± 1.0  
- Soluble: in Water  
- Application: Anti-inflammation, Anti-Allergy, Anti-oxidant  
- Dosage: 1~2%    | ![Bio Tranquillizer - Water part](image) |
| Natural Anti-Irritant For Subjective Irritation | Bio Relaxer (BR) | Solanum tuberosum (Potato) pulp extract  
Aloe ferox Leaf extract  
Cordyceps militaris mycelium extract  
Angelica keiskei leaf/Stem Extract | - Appearance: Opaque Liquid  
- pH: 5.5 ± 1.0  
- Soluble: in Water  
- Effect: Anti-itching, Anti-pricking  
- Dosage: 5%    | ![Bio Relaxer](image) |
Natural Preservatives for Cosmetics

A natural preservative has been constituted of purified fractions of traditional oriental herb which has medicinal effects such as anti-microbial, anti-inflammation, fever remedy, anti-oxidation, and anti-aging effect etc.

1. Broad scope of anti-microbial spectrum
2. Anti-oxidation and anti-ageing activity
3. High thermo stability and pH independent efficiency
4. Compatible with cosmetics formula

<table>
<thead>
<tr>
<th>MSE-G</th>
<th>MEG-PG</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INCI Name</strong></td>
<td><strong>INCI Name</strong></td>
</tr>
<tr>
<td>Scluellaria Baicalensis Root extract, Glycyrrhiza Glabra(Licorice) Root extract, Lactobacillus ferment, Glycerin</td>
<td>Citric Acid, Lactobacillus Ferment, Malic Acid, Camellia Sinensis Leaf Extract</td>
</tr>
</tbody>
</table>

- Appearance : Light Yellow Liquid
- pH : 6.0 ±1.0
- Soluble : in Water (Little Turbid)
- Application : Natural cosmetics

- Appearance : Bright White Powder
- pH : 3.0 ± 1.0
- Soluble : in Water
- Application : Natural cosmetics
  Food grade

Natural Preservatives for Food

<table>
<thead>
<tr>
<th>MEG-PG</th>
<th>MCE-F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INCI Name</strong></td>
<td><strong>INCI Name</strong></td>
</tr>
<tr>
<td>Citric Acid, Lactobacillus Ferment, Malic Acid, Camellia Sinensis Leaf Extract</td>
<td>Cinnamomum Zeylanicum Bark Extract, Glycyrrhiza Glabra(Licorice) Root Extract, Lactobacillus ferment, Glycerin</td>
</tr>
</tbody>
</table>

- Appearance : Bright White Powder
- pH : 3.0 ± 1.0
- Soluble : in Water
- Application : Food grade
  Natural cosmetics

- Appearance : Light yellow Liquid
- pH : 3.5 ± 1.0
- Soluble : in Water
- Application : Beverage, Source, Ham, Noodle, etc
Natural Anti-Acne Extract

<table>
<thead>
<tr>
<th>INCI Name</th>
<th>Chamaecyparis Obtusa Leaf Extract, Citrus Unshiu Fruit Extract, Glycyrrhiza Inflata Root Extract, Vitis Vinifera (Grape) Seed Oil, Lactobacillus Ferment</th>
</tr>
</thead>
</table>

- Appearance: Light Brown Liquid
- pH: 7.5 ± 1.0
- Soluble: in Water
- Application: BCX-CA has better efficacy than tea tree oil, which was proved by clinical trial.

### Ingredient / Function

**Chamaecyparis obtusa Leaf Extracts**
- Revolutionary natural ingredient that has been proven to dramatically improve acne conditions by clinical study
- Inhibits the growth of *P. acnes*
- Reduces and controls blocked pores more effective than tea tree oil,

### BCX-CA vs tea tree oil

- BCX-CA inhibits *P.acnes* more effectively than tea tree oil
  1: Tea tree oil
  2: Natural extract of *Citrus Unshiu* peel
  3: BCX-CA

### Active ingredients increased after fermentation

① Dihydrobenzoic acid,
② Taxifolin 3-O-β-D-xylopyranosid
③ Quercetin 3-rhamnoside

∴ 3 Peaks were increased after fermentation.
1. BCX-CA
2. tea tree oil
3. natural extract of *Citrus Unshiu* peel

**Growth inhibition of *P. acnes* : 24hrs incubation**

![Graph showing growth inhibition](image)

∴ 5% of BCX-CA inhibited the growth of *P. acnes* more than 5% of tea tree oil

**Anti-inflammation efficacy**

![Graph showing TNF-α levels](image)

∴ TNF-α decreased, When BCX-CA was added to LPS irritated HaCAT cell.

**Clinical study : performed at the Seoul National University Hospital**

![Clinical study images](image)
Natural Sunscreen

<table>
<thead>
<tr>
<th>BHC-S</th>
<th>INCI Name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arachis hypogaea fruit extract, Oryza sativa bran oil extract,</td>
</tr>
<tr>
<td></td>
<td>Centella asiatica extract, Ecklonia kurome extract</td>
</tr>
</tbody>
</table>

- Appearance : Light Gray Powder
- pH : 3.5±1.0
- Soluble : in Oil
- Effect : Natural sunscreen formular (synthetic organic sunscreen free)

1. BHC-S strongly protects the UV sensitive yeast strain and absorbs broad UV spectrum
2. It can be easily incorporated into any formulation
3. In combination with other UV-filters, high SPF can be achieved.
Natural Sanitizing Ingredient

<table>
<thead>
<tr>
<th>MLE-T</th>
<th>Glycyrrhiza Glabra(Licorice) Root Extract, Camellia Sinensis Leaf Extract, Lactobacillus Ferment</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCI Name</td>
<td></td>
</tr>
</tbody>
</table>

- Appearance: Pale Yellow Liquid
- pH: 3.5 ± 1.0
- Soluble: in Water
- Application: For hand sanitizer (edible ingredient), wet tissue, infants products and anti-microbial spray

Anti-bacterial efficacy

- Sample: 5% solution of MLE-T, 10% solution of MLE-T
- Test Time: 5min

<table>
<thead>
<tr>
<th>Sample</th>
<th>Antibacterial efficiency(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>S. aureus</td>
</tr>
<tr>
<td>5% MLE-T</td>
<td>99.999</td>
</tr>
<tr>
<td>10% MLE-T</td>
<td>99.999</td>
</tr>
</tbody>
</table>

Anti-bacterial activity rate against pathogenic microbe

- Sample: 3% MLE-T solution
- Test subjects: Nonwovens
- Strains: Aspergillus niger, Penicillium pinophilum, Chaetomium globosum, Gliocladium virens, Aureobasidium pullulans
- Test result: No Growth

Bioassay compared to alcohol

- Sample: Ethanol, Isopropyl alcohol
- Test subjects: S. aureus, E. coli, C. albicans, A. niger
Natural Anti-Dandruff Extract

<table>
<thead>
<tr>
<th>BCX-D</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>INCI Name</td>
<td>Chamaecyparis Obtusa Leaf Extract, Cordyceps sinensis Extract, Lactobacillus Ferment</td>
</tr>
<tr>
<td>- Appearance:</td>
<td>Light Brown Liquid</td>
</tr>
<tr>
<td>- pH:</td>
<td>7.5 ± 1.0</td>
</tr>
<tr>
<td>- Soluble:</td>
<td>in Water</td>
</tr>
<tr>
<td>- Application:</td>
<td>BCX-D is Natural Anti-Dandruff ingredient made using Chamaecyparis obtusa and cordyceps</td>
</tr>
</tbody>
</table>

**BCX-D vs. hinoki oil & zinc pyrithione**

1: Before bio-conversion
2: After bio-conversion

**Bio-conversion effect**

Efficacy of active ingredients of extracts of *Chamaecyparis obtusa* leaf & *Cordyceps sinensis* was maximized by fermentation, which increases the inhibition of *P.ovale*.

**Growth inhibition of *P. ovale* after 3 days incubation**

5% of BCX-D inhibited the growth of *P. ovale* more than 5% of hinoki oil and inhibition rate of BCX-D and zinc pyrithione was almost same.
Anti-Irritant for Objective Irritation

<table>
<thead>
<tr>
<th>Bio Tranquilizer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part</td>
</tr>
<tr>
<td>INCI Name</td>
</tr>
<tr>
<td>- Appearance : Light Yellow Semisolid - pH : 6.0 ± 1.0 - Soluble : in Oil</td>
</tr>
</tbody>
</table>

**Effect**
- Anti-inflammation, Anti-allergy, Anti-itching, Anti-irritation

- **NO inhibition assay (RAW 264.7 cell)**

- **Anti-Inflammation IL-1ß (RAW 264.7 cell)**

- **Anti-Inflammation IL-6 (RAW 264.7 cell)**

- **Tumor Necrosis Factor (RAW 264.7 cell)**
Anti-Irritant for Subjective Irritation

<table>
<thead>
<tr>
<th>Bio Relaxer (BR)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INCI Name</strong></td>
</tr>
</tbody>
</table>

- Appearance: Opaque Liquid
- pH: 5.5 ± 1.0
- Soluble: in Water

**Effect**
- Bio Relaxer relieves the skin from the irritation caused by itching and burning sensation from external stimuli such as UV, Heat, Cosmetics etc.

- Irritation was reduced by 1% Bio-relaxer
- Irritation was induced by adding 5% lactic acid.
- The degree of irritation was checked after 30 minutes.
- Irritation was reduced by Bio-relaxer depending on the concentration.

![Graph showing relative irritation](image)

\[ \text{Relative Irritation (\%)} \]

- Lactic acid 5%
- 5% lactic acid + 1% Bio-relaxer
# Extract Fermented by Lactobacillus

<table>
<thead>
<tr>
<th>Name</th>
<th>INCI Name</th>
<th>Physical test</th>
<th>Product</th>
</tr>
</thead>
</table>
| Cordyceps militaris mycelium Extract | Cordyceps militaris mycelium extract, Lactobacillus Ferment, Glycerin | - Appearance: brown liquid  
- pH: 4.5±1.0  
- Soluble: in Water  
- Effect: Anti-inflammation, Anti-oxidant  
- Dosage: 1~5% | ![Image](image1.png) |
| Coptis Japonica Root Extract | Coptis Japonica Root extract, Lactobacillus Ferment, Glycerin              | - Appearance: Deep yellow liquid  
- pH: 4.0±1.0  
- Soluble: in Water  
- Effect: Anti-oxidant  
- Dosage: 1~5% | ![Image](image2.png) |
| Licorice Root Extract       | Licorice Root extract, Lactobacillus Ferment, Glycerin                     | - Appearance: Deep yellow liquid  
- pH: 4.5±1.0  
- Soluble: in Water  
- Effect: Anti-oxidant, Moisturization Whitening  
- Dosage: 1~5% | ![Image](image3.png) |
| Scutellaria Baicalensis Root Extract | Scutellaria Baicalensis Root Extract, Lactobacillus Ferment, Glycerin | - Appearance: Deep yellow liquid  
- pH: 4.0±1.0  
- Soluble: in Water  
- Effect: Anti-inflammation, Anti-Allergy, Anti-oxidant, Whitening  
- Dosage: 1~5% | ![Image](image4.png) |
| Camellia Sinensis Leaf Extract | Camellia Sinensis Leaf extract, Lactobacillus Ferment, Glycerin           | - Appearance: Brown liquid  
- pH: 4.0±1.0  
- Soluble: in Water  
- Effect: Anti-inflammation, Anti-Allergy, Anti-oxidant, Whitening, Contraction of pores  
- Dosage: 1~5% | ![Image](image5.png) |
| Red Ginseng Extract         | Red Ginseng Extract, Lactobacillus Ferment, Glycerin                       | - Appearance: Brown liquid  
- pH: 4.5±1.0  
- Soluble: in Water  
- Effect: Anti-oxidant  
- Dosage: 1~5% | ![Image](image6.png) |