MONK FRUIT INTRO & OUTLOOK

ELAINE YU
Layn USA, Inc. President
AGENDA

• Monk Fruit Origin
• Monk Fruit Harvest Cycle
• Distinguishing Properties
• Use Considerations & Labeling
• Common Applications
• Formulation
• Monk Fruit Successful Retail Products
• Layn Product Offering
Monk Fruit, also known as *Luo han guo*, is a small round fruit grown in Southeast Asia. This fruit originates from China and has been consumed as a functional tea and traditional remedy for coughs and colds for centuries.

More than 98% of global Monk Fruit production is from the greater Guilin area.
CLEAN LABEL CONFERENCE 2018

Monk Fruit Harvest Cycle

**SPRING**
- Seedling

**SUMMER**
- Pollination

**AUTUMN**
- Harvest

Monk Fruit Juice Concentrate

Monk Fruit Powder Extract

Purification

Water Extraction
Distinguishing Properties

- Non-GMO Project Verified
- Up to 300X as sweet as sugar
- Non-caloric
- Superior taste profile
- Fruit based
Distinguishing Properties

<table>
<thead>
<tr>
<th></th>
<th>Monk Fruit Juice Concentrate (65Brix)</th>
<th>Monk Fruit Powder Extract</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sweetness Level</strong></td>
<td>Up to 15X as sweet as sucrose</td>
<td>Up to 300X as sweet as sucrose</td>
</tr>
<tr>
<td><strong>Concentration</strong></td>
<td>0.5% ~ 4% Mogroside V</td>
<td>20% ~ 60% Mogroside V</td>
</tr>
<tr>
<td><strong>Benefit</strong></td>
<td>- Fruit Juice Ingredient w/ Natural Bioactives &amp; Sweetness</td>
<td>- Zero Sugar</td>
</tr>
<tr>
<td></td>
<td>- Clean Sweet Taste</td>
<td>- Zero Calorie</td>
</tr>
<tr>
<td></td>
<td>- Sugar Reduction</td>
<td>- Fruit Extract</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Very Good Solubility</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Clean Taste</td>
</tr>
<tr>
<td>Food Ingredient</td>
<td>Monk Fruit Juice Concentrate</td>
<td>Monk Fruit Powder Extract</td>
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<tr>
<td>Wide acceptance in a lot of countries as Fruit Juice</td>
<td>USA, Canada (tabletop, NHP), Colombia, China, Japan, Korea, EU Pending</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Flavor (FEMA)</th>
<th>Not Applicable</th>
<th>FEMA countries, Europe</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Clean Label</th>
<th>- Monk Fruit Juice Concentrate</th>
<th>- Monk Fruit Extract</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>- Luo Han Guo Concentrate</td>
<td>- Luo Han Guo Extract</td>
</tr>
<tr>
<td></td>
<td>- Monk Fruit Juice From Concentrate</td>
<td>- Natural Flavor (when used as flavor modifier)</td>
</tr>
<tr>
<td></td>
<td>- Monk Fruit Juice (water, monk fruit juice concentrate)</td>
<td></td>
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</tbody>
</table>
Most common applications include:

- **Beverages**
- **Sports Nutrition**
- **Dairy**
- **Bakery**
- **Confectionary**
- **Tabletop Sweetener**
The perfect sweet solution can be accomplished through the “stacking” strategy:

- **Natural Flavors**
- **Non-Caloric Bulk Sweeteners** (Erythritol, Allulose)
- **High Potency Sweetener** (Stevia, Monk Fruit, Lovia)
- **Sugar**

Main concerns being:

1. End Product Application
2. Cost
3. Regional Regulations
Monk Fruit Based Successful Retail Products
ENLIGHTENED Ice Cream: French Toast Ice Cream Pint

Ingredients:

Skim Milk, Milk Protein Isolate, Erythritol (Natural Sweetener), Non-GMO Soluble Corn Fiber, Cream, Cane Sugar, Contains 2% Or Less Of: Vegetable Glycerin, Natural Flavor, Butter, Maple Syrup, Carob Gum, Guar Gum, Monk Fruit Extract, Caramel Color, Salt, Pectin, Citric Acid, Baking Soda, Malic Acid, Disodium Phosphate.

Claims:

- 70 Calories per serving
Whole Earth Sweetener Company: Nature Sweet

Ingredients:

Erythritol, Fructose, Fructans, Stevia Extract, Luo Han Guo Extract

Claims:

- 0 Calorie
- Non-GMO
Starbucks Doubleshot Coffee & Protein

Ingredients:

Starbucks Coffee (Water, Coffee), Reduced Fat Milk, Skim Milk, Milk Protein Concentrate, Sugar, Erythritol, Calcium Caseinate (Milk), Root Fiber (Chicory), Carrageenan, Monk Fruit Extract, Ascorbic Acid (To Protect Flavor).

Claims:

- 20g Protein per serving
Bolthouse Farms: Daily Roots

Ingredients:

Beet Juice From Concentrate (Water, Beet Juice Concentrate), Purple Carrot Juice From Concentrate (Water, Purple Carrot Juice Concentrate), Cucumber Juice From Concentrate (Water, Cucumber Juice Concentrate), Purple Sweet Potato Juice From Concentrate (Water, Purple Sweet Potato Juice Concentrate), Red Bell Pepper Puree, Parsley Juice, Lettuce Juice, Watercress Juice, Lemon Juice From Concentrate (Water, Lemon Juice Concentrate), Sea Salt, Natural Flavor, Monk Fruit Juice From Concentrate (Water, Monk Fruit Juice Concentrate), Spinach Juice, Calcium (Calcium Lactate And Tricalcium Phosphate), Potassium (Monopotassium Phosphate), Vitamin C (Ascorbic Acid), Iron (Ferrous Sulfate), Zinc (Zinc Sulfate), Vitamin A (Palmitate), Manganese (Manganese Sulfate), Vitamin B6 (Pyridoxine Hydrochloride), Vitamin B9 (Folic Acid), Vitamin B12 (Cyanocobalamin).

Claims:

- 20g Protein per serving
Monk Fruit Based Successful Retail Products

Fairlife Smart Milkshakes: Creamy Strawberry

Ingredients:

Milk, Honey, Strawberry Puree, Oat Flour, Fructo-oligosaccharides, Luo Han Guo Concentrate, Stevia Extract, Natural X Flavourings, Pectins, Gellan Gum, Beetroot Juice Concentrate, Sodium Polyphosphate, Lactase, Retinyl Palmitate, Menaquinone, Vitamin C, Tocopherol, Cholecalciferol

Claims:

- Lactose Free
Nature’s Sweet Solutions

1. World’s largest capacity of Stevia and Monk Fruit extract.

2. Widest portfolio of plant-based sweeteners and natural flavors.

3. From seedling to finished product – sustainable supply chain.

4. Global technical community with formulation and application expertise.
## Layn Monk Fruit Product Offering

<table>
<thead>
<tr>
<th>Specification</th>
<th>Monk Fruit (Luo Han Guo) Juice Concentrate</th>
<th>Monk Fruit Juice Concentrate</th>
<th>Go-Luo® Monk Fruit Extract</th>
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</thead>
<tbody>
<tr>
<td>Mogroside V 0.5~1%</td>
<td></td>
<td>Mogroside V 1%~5%</td>
<td>Mogroside V 20%</td>
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<td></td>
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<td>Mogroside V 25%</td>
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<td>Mogroside V 30%</td>
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<td>Mogroside V 40%</td>
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<td>Mogroside V 50%</td>
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<td></td>
<td>Mogroside V 55%</td>
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<td></td>
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<td>Mogroside V 60%</td>
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Thank you for your time today!