EyePro™ 3X
Unveil Luminous Eyes Naturally

INCI Name: Water (and) Betaine (and) Pentylene Glycol (and) Saccharomyces cerevisiae Extract (and) Rhodiola rosea Root Extract
SAP Code#: 138350

Key Product Attributes:
- Naturally-based active
- Reduces puffiness and sagging
- Skin firming
- Moisturizing
- Oxygenating complex
- Energizes eye area

Background

No area of the face is more vulnerable to aging than the delicate thin skinned area around the eyes. This makes the under eye region more prone to photodamage and typically the first place that age related skin changes are noticed. Both intrinsic (genetic) and extrinsic (environmental) aging come into play in the eye area, however the majority of extrinsic damage can be addressed by employing a daily eye care regimen to protect this vulnerable area. The most common signs of aging in the eye area are puffiness or bags, dark circles, and fine lines and wrinkles. Undereye puffiness or bags indiscriminately affects people of all age groups. Lack of sleep, water retention due to fluids trapped under the eye and loss of skin firmness around the eye area can all lead to these unsightly bags. Getting rid of excess water or breaking down fatty deposits under the eye can effectively minimize the appearance of bags and swelling. Dark circles tend to be more of a hereditary condition caused by deeply pigmented skin, or can be caused by the weakening of capillaries under the eye. As we get older, the skin under the eye
becomes even thinner, which causes the veins under the eye to become more prominent. By strengthening the dermal matrix under the eye, this condition can be improved dramatically, along with addressing the fine lines and wrinkles present. EyePro™ 3X is a targeted complex based on natural actives that addresses fine lines, puffy eyes, dry skin, and dark circles. An energizing ingredient, EyePro™ 3X is comprised of an extract from a stressed yeast ferment, the adaptogen *Rhodiola rosea* and betaine isolated from sugar beets. EyePro™ 3X stimulates, energizes and hydrates fatigued tissues to create the appearance of smoother, firmer youthful eyes.

**Fig. 1**
EyePro™ 3X targets the complicated aging process of the eye area to restore youthful glow to the eyes and face.

**Efficacy**

**In Vitro Study - Oxygenating & Energizing Saccharomyces Lysate Extract**

Oxidative stressed yeast ferment increases cell respiration heightening the efficiency with which cells utilize oxygen. This, in turn, potentiates the efficacy of other actives and improves microcirculation. Enhanced circulation stimulates the subcutaneous and deep layers of fat and muscle. The increased blood flow helps to shrink the fat cells, reducing the appearance of puffiness. An increase in cell respiration, as shown in Figure 2, can also promote an increase in collagen and elastin synthesis; strengthening and firming the delicate skin under the eye.

**Enhancements in O₂ Consumption in Fìbroblasts**

**Fig. 2**
Oxygen Consumption Driving Enhanced Metabolic Functions

* Equivalent to 3% EyePro™ 3X

**Reduction of Fatty Deposits - Lipolysis**

* *Rhodiola rosea* root extract has the ability to significantly stimulate lipolysis, or fat burning. In an *in vitro* study, *Rhodiola rosea* demonstrated enhanced adipocyte oxygen consumption; 3% NAB™ Rhodiola showed a 133% increase in oxygen consumption over baseline. The ability of *Rhodiola rosea* to stimulate lipid breakdown was evaluated *in vitro* on cultured adipocytes. Subcutaneous adipocytes were incubated with various amounts of NAB™ Rhodiola or caffeine. The amount of free glycerol in each of the treated samples was measured through UV spectrometer after 24 hours. As shown in Figure 3, treatment with NAB™ Rhodiola increased glycerol release. After 24 hours, NAB™ Rhodiola showed a higher amount of glycerol content, revealing that it was more effective at breaking down triglycerides, or fat, in the adipocytes compared to the commonly used stimulant, caffeine. In EyePro™ 3X, *Rhodiola rosea* actively reduces under-eye puffiness by driving lipolysis at the cellular level.
Breakdown of Fat in Adipocytes

Glycerol (nmol/mg) After 24hrs

<table>
<thead>
<tr>
<th></th>
<th>0.2% Active Rhodiola</th>
<th>0.1% Active Rhodiola</th>
<th>0.05% Active Rhodiola</th>
<th>0.15% Active Caffeine</th>
<th>0.05% Active Caffeine</th>
<th>Untreated</th>
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<tbody>
<tr>
<td></td>
<td>700</td>
<td>600</td>
<td>500</td>
<td>400</td>
<td>300</td>
<td>200</td>
</tr>
</tbody>
</table>

**Fig. 3**
NAB™ Rhodiola vs. Caffeine – In Vitro Assay Evaluating Breakdown of Triglycerides into Glycerol

*0.05% Active Rhodiola equivalent to 1.0% EyePro™ 3X
**0.1% Active Rhodiola equivalent to 2.5% EyePro™ 3X
***0.2% Active Rhodiola equivalent to 5.0% EyePro™ 3X

Firming and Moisturizing
Sugar Beet Betaine
Sugar-beet betaine (trimethylglycine) is a natural product derived from sugar beets. It is an evolutionary superosmolyte, helping to maintain cell water balance against dry environment and other stress factors, without interfering with cell metabolism. Betaine has been shown to promote cellular ATP production, thereby enhancing all cellular activity. *In vitro* studies further support betaine's ability to stimulate the production of collagen in human dermal fibroblasts. As shown in Figure 4, after one month of treatment with betaine, a 37% - 45% increase in collagen production was noted. The production of collagen acts to strengthen the delicate eye area.

**Fig. 4**
*In vitro* Collagen Production on Human Fibroblasts

Clinical Use Study
*In Vivo Evaluation of Efficacy of Product to Reduce Under-eye Puffiness*
An *in vivo* panel study was conducted to determine the efficacy of the EyePro™ 3X at reducing under-eye puffiness following a 4 week use study. Evaluations were done by a subjective questionnaire. Seventeen female subjects exhibiting visible signs of puffiness of the under-eye area of the face were treated with EyePro™ 3X for four weeks. Each subject completed a questionnaire at the end of the 4 week study. Subjects were instructed to apply the test product to the under-eye portion of the face in the morning and the evening.

**Fig. 5**
Questionnaire results – Improvements noted by panelists in the following categories after a one month application of an emulsion containing 5% EyePro™ 3X.

**Conclusion**
EyePro™ 3X is an energizing balanced system which targets the delicate eye area, and reduces the appearance of puffy eyes. This restorative system is fortified by an optimized combination of Betaine, Rhodiola rosea and an extract from a stressed yeast ferment. EyePro™ 3X increases oxygen consumption in cells, and enhances lipolysis action, resulting in the break down of triglycerides. Its osmolytic attributes control excessive fluid build up, ensuring optimal cell hydration. In addition, it enhances the delivery of actives which promote elastin and collagen synthesis. This complex illuminates the eye contour area by eliminating puffiness, enhancing moisturization and promoting skin firmness. EyePro™ 3X can be easily incorporated into gels, creams and lotions for skin toning and tightening effects.
Typical Properties

<table>
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<tr>
<th>Property</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Amber liquid</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight herbal note</td>
</tr>
<tr>
<td>Non-Volatile Matter (1g - 1hr - 105°C)</td>
<td>40-50%</td>
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<tr>
<td>pH (@ 25°C)</td>
<td>6.5-7.5</td>
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<tr>
<td>Recommended Use Level</td>
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Safety Profile (Testing done at 100%)

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<tr>
<th>Safety Profile</th>
<th>Value</th>
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<tbody>
<tr>
<td>EpiOcular</td>
<td>Non Irritant</td>
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<tr>
<td>EpiDerm</td>
<td>Minimal Irritant</td>
</tr>
<tr>
<td>RIFT</td>
<td>Non sensitizing</td>
</tr>
</tbody>
</table>

References

2. Cellular Oxygen Consumption Assay, Study Number 03-0049, BioInnovations Laboratories
3. Adipocyte Lipolysis Study, Study Number 04-0076, BioInnovations Laboratories