

Increases blood circulation
 Increases availability of oxygen
 Enhances delivery of nutrients
 Facilitates removal of toxins
 Reduces puffiness
 Alleviates bags under the eyes
 Use level: 3% to 10%

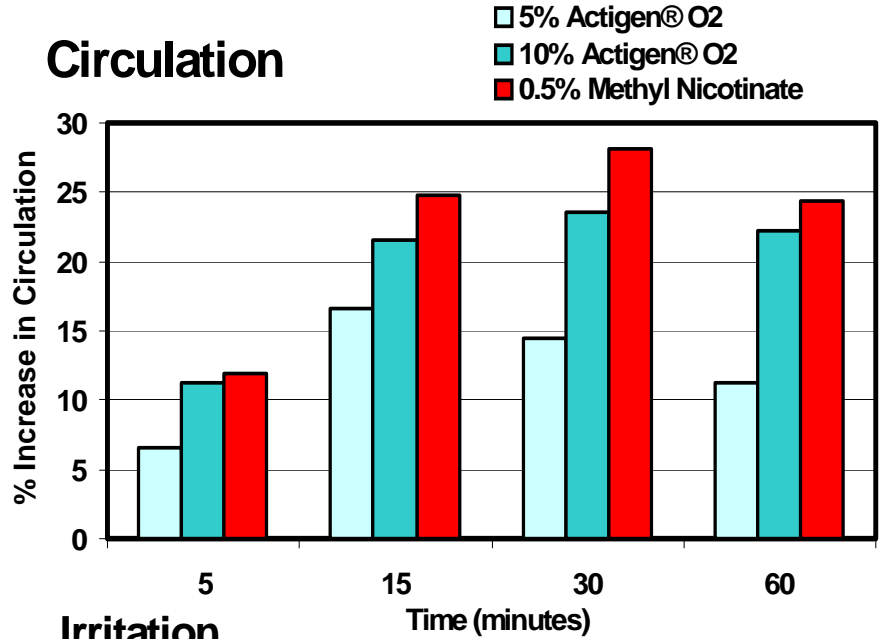
Panax ginseng



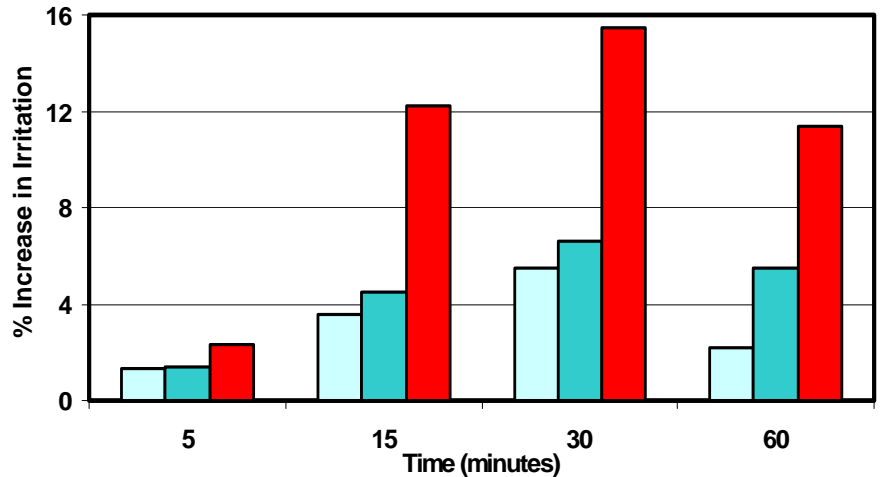
Gynostemma pentaphyllum



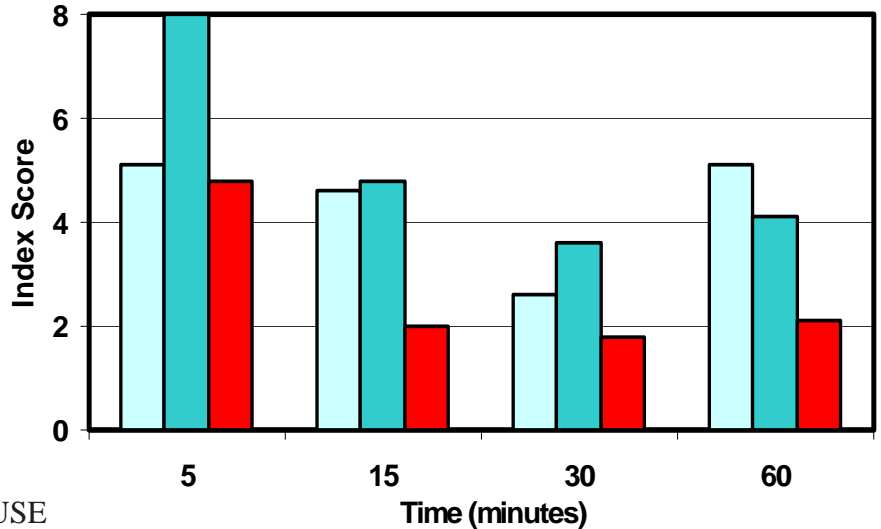
Circulation



Irritation



Therapeutic Index



CTFA/INCI Name:

Gynostemma pentaphyllum extract,
Panax Ginseng Extract

JCIC Number:

Gynostemma pentaphyllum: 523004,
Panax Ginseng: 104577

CAS Number:

Gynostemma pentaphyllum: N/A,
Panax Ginseng: 90045-38-8

EINECS Number:

Gynostemma pentaphyllum: N/A,
Panax Ginseng: 289-898-5

Historic Uses:

Actigen® O2 combines the Chinese healing secrets of Ginseng with Gynostemma to increase respiration and protect and nourish dry skin. In particular, increased blood flow results in an increase in the rate of oxygen being delivered to the skin, resulting in increased “respiration.” This helps prevent or slow down the premature aging of skin and helps the skin from becoming dehydrated.

Ginsenosides, the active components of ginseng, are known to enhance circulation in the capillaries of the skin and increase the supply of nutrients to the epidermis. Ginseng has been used for centuries as a remedy to enhance cellular function, both internally and externally.

Gynostemma pentaphyllum, also known as Jiaogulan, has also been used throughout centuries to enhance circulation and respiration. Gypenosodes, the active components of Jiaogulan, have other interesting effects as well. These active components also exhibit strong antioxidant and anti-inflammatory effects.

Actigen® O2 is a unique blend of active components standardized to deliver the optimum effects of circulation, respiration, and oxygenation to maintain healthy skin. Additional benefits include protecting the blood vessels and cells against oxidative damage, and supplying nutrients to aged and damaged cells during healing.

Major Characteristics:

USAGE LEVEL:	Recommended 3% - 10% in skin and hair care products	
PROCESSING:	Add to batch at 50°C or less	
SPECIFICATIONS	Appearance:	Light to medium amber liquid
	Odor:	Characteristic
	Solubility:	Soluble in any portion in water
	Specific Gravity:	0.99 – 1.06 at 25° C
	Microbial Plate Count:	Less than 100 organisms per gram
	HPLC Analysis:	PASS

INTRODUCTION:

Respiration is the process by which the cells of an organ, in this case skin, utilize oxygen and nutrients needed for efficient metabolism and health. Furthermore, respiration also includes the process by which an organ eliminates carbon dioxide and toxic elements before adverse reactions and damage can occur. As both intrinsic damage (aging) and extrinsic damage (UV, pollution, etc.) become apparent in our appearance, the blood vessels of the skin become impaired in their ability to function properly. The subsequent decrease in blood flow also creates a consequential decrease in metabolism due to a decrease in the delivery of oxygen and nutrients.

Previous attempts to increase blood flow / respiration to the skin have met with mixed results. Certain chemicals (such as methyl nicotinate) and plant derivatives (such as capsaicin) are well documented in their ability to enhance blood flow. Unfortunately, these compounds are also well documented for their roles in creating adverse reactions in the skin resulting in significant levels of irritation and discomfort.

EXPERIMENTAL DESIGN:

Actigen® O2 was developed as a comfortable alternative to methyl nicotinate and capsaicin. The aim of our research was to develop a safe and natural blend of active components that were capable of significantly enhancing the respiration of the skin without exhibiting the adverse irritation exhibited by methyl nicotinate and capsaicin.

Experiments were conducted on volunteers to determine the effectiveness of the herbal blend. Increases in blood flow were determined by laser Doppler flowmetry or perfusometry (LDF). Increases in irritation were determined using the a^* value as detected by a Minolta Chroma meter.

PROTOCOL:

Subjects:

Approximately 10 subjects were recruited and were required to refrain from using any products (other than those supplied by the test center, which included a synthetic soap) for 5 days prior to and throughout the course of the study. Subjects (at least half) will be 30-45 years of age, and the remainder will be 46-60 years of age with the typical exclusion criteria as followed for all topical studies noted, including the following:

1. Subjects who are pregnant or intend to become pregnant within the next 3 months.
2. Subjects with known communicable diseases.
3. Subjects who are nursing/ lactating.
4. Subjects currently on test in any other clinical study.
5. Subjects with psoriasis, dermatitis, or eczema.
6. Subjects on medication will be reviewed on a case-by-case basis.
7. Subjects currently using or having used in the past six months; retinoids, corticosteroids, antibiotics, etc.
8. Subjects who, in the opinion of this investigator are inappropriate for other defined reasons, i.e. skin type, sensitive skin, smoker, etc.

Product Samples:

Samples were supplied by Active Organics™: a control, a 5% Actigen® O2 solution and a 10% Actigen® O2 solution. An “in house” sample of methyl nicotinate (0.5%) was used as a positive control.

Product Usage:

After the initial dry out phase, subjects were instructed to come to the test center at the prescribed time having washed their forearm at least 30 minutes prior to their arrival. Test subjects were allowed to equilibrate at least 30 minutes at defined temperature and relative humidity (70°C, 50% RH) prior to the test start.

Test products were applied in excess (5 mg/cm²) to test sites on the volar arm (4cm * 4cm) Thereafter, the effect of the test materials to provide the skin with an increase in blood flow was assessed at predetermined times. Immediately thereafter, the effect of the test materials on the skin with respect to irritation was assessed at predetermined times. Results are the average of six measurements and are normalized against controls.

MEASUREMENT OF ERYTHEMA WITH THE MINOLTA CHROMA METER

The Minolta Meter, a commercial skin reflectance meter, was used to measure optical properties of the skin as described in a number of publications. Prior to any testing, the instrument was calibrated using a white tile plate supplied by the manufacturer along with calibration instructions (see manufacturer instruction manual). For testing of skin optical properties, we use the probe flash, as supplied by the manufacturer.

Although the ambient state of hydration influences skin color measurements only slightly, prior to testing, subjects were equilibrated at defined RH (between 30-40% unless otherwise defined) and temperature (68-72°C) for 15 minutes in an isolated room. Tested sites are all exposed to the air with no clothes covering them. After calibration of the probe as per manufacturer instructions, the probe was applied lightly to the skin surface and the "trigger" is pulled. The instrument sends three flashes of light into the skin surface, and the reflectance properties from the average of the three flashes is recorded (as a print out of L, a* and b). Three measurements are made utilizing a 4 x 5 cm² area and averaged as a single reading. If variance with any one reading was more than 10%, the measurement is discarded and repeated. The a* value was used as a measurement of skin redness or erythema. Additional information available from the manufacturer.

ASSESSMENT OF SKIN BLOOD FLOW VIA LASER DOPPLER

Skin blood flow and microcirculation is measured via laser Doppler flowmetry or perfusometry (LDF). A low power helium-neon laser beam (632.8 um wavelength) is sent into the skin, and reflected light is collected and analyzed with respect to a Doppler shift. The returning signal is directly and linearly proportion to the number of blood cells/ unit volume *(times) mean velocity of the cells.

In our experiments we use a Perimed PF3 perfusometer, with the PF 313 integrating probe. The integrating probes shines seven separate beams into the skin to minimize regional tissue variations. Prior to testing zero flux, calibration is completed using a white Teflon block standard. Next, instrument gain is set using the PF 100 latex motility standard. At testing temperatures (68-72 F), gain is set so the PF 100 standard gives a reading of 100 perfusion units. For testing, the instrument is set to wide band mode.

For in vivo testing, subjects are required to equilibrate at defined temperature and humidity conditions for 30 minutes prior to measurements. Depending on the site being analyzed, subjects are required to be seated, or reclined during the equilibration period. Subjects are required to refrain from use of caffeine-containing beverages the morning of the test. For testing the probe is applied to the skin surface using double stick tape.

The probe remains in position for at least 30 seconds or until a stable signal is achieved. In general measurements are repeated at least twice and the data averaged. Data is either recorded manually, or captured in a data processing program through an RS 32 interface.

CONCLUSIONS:

Actigen® O2 proved to be an efficient method to increase blood flow in the skin. Significant increases in blood flow were observed for at least one hour after product application. Results were comparable to a positive control used in

the study (0.5% methyl nicotinate). Furthermore, a dose response was observed as the concentration of active was increased. More importantly, no significant levels of irritation were observed for this product whereas methyl nicotinate at 0.5% concentration (positive control) exhibited significant increases in skin redness.

Assessment of the results by exhibiting the data as a therapeutic index (benefit (circulation) / counter-benefit (irritation) ratio) shows the herbal blend (5%) as being superior in regard to the tested effects to 0.5% methyl nicotinate.

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