

AC DermaPeptide MicroC PF



Circulation Anti-irritant
Anti-irritant
enhances collagen synthesis
capsaicin
saccharomyces cerevisiae
fermentation, biotransformation
solubility capsaicinoid
increased cell metabolism

BACKGROUND

Red pepper, or *Capsicum annuum*, is used for a variety of medicinal applications ranging from digestive to analgesic treatments. Cultivated more than 7,000 years ago, the fruit of this plant has a widespread importance both nutritionally and economically. Capsicum is the most commonly used source for capsaicin, the active responsible for the hot sensation of chilies. Capsicum has been known to contain high levels of antioxidants ranging from ascorbic acid and glutathione to robust enzymes, such as superoxide dismutase.

Capsaicin has been shown to induce apoptosis in many types of cancer cells. It is now thought that this is due to the localized increase in reactive oxygen species¹. This is only part of the story with regard to activity of Capsicum because it is clear that there are other components present in the fruit of the plant that can mobilize immune function². Perhaps more importantly Capsaicin inhibits angiogenesis³. It is somewhat interesting that a product known to produce redness inhibits angiogenesis. The erythema found with topical application is no doubt a result of the increased ROS levels and not directly a result of increased circulation.

It has also been shown that by fermenting Capsicum a product is formed that will increase glutathione levels while at the same time stimulating immune function⁴. This provided an interesting starting point for a new product. What if we were able to provide some of the benefits of a Capsicum extract without any of the associated irritation?

Code Number: 20450PF

INCI Name: Saccharomyces/Capsicum Annum Fruit Ferment Filtrate

INCI Status: Conforms

REACH Status: Approved

CAS Number: 84625-29-6

EINCS Number: 283-403-6

Origin: Yeast

Processing:

GMO Free

No Ethoxylation

No Irradiation

No Sulphonation

Additives:

Preservatives: None

Antioxidants: None

Other additives: None

Solvents Used: Water

Appearance: Hazy Amber Liquid

Soluble/ Miscible: Water

Ecological Information:

100% Biodegradability

Microbial Count: <100 opg,

No Pathogens

Suggested Use Levels: 0.5 - 15.0%

Suggested Applications: Increased Circulation, Collagen Synthesis, Anti-irritant

Benefits of AC Derma Peptide MicroC PF:

- Anti-irritant Benefits
- Increased Circulation
- Stimulates Collagen Production
- Increases Cellular Metabolism

AC DermaPeptide MicroC PF

SCIENCE

Optimal circulation is critical for nutrient delivery, which is a key factor for radiant skin. Active Concepts developed **AC DermaPeptide MicroC PF**, a product that delivers the improved circulation benefits of Capsaicin without any of the associated irritation. The skin can become irritated overtime from environmental stress, causing dryness, thus accelerating the aging process. Produced by fermenting the macerated fruit of *Capsicum annum* with *Saccharomyces cerevisiae*, **AC Dermapeptide MicroC PF** combines the benefits of Capsicum and the anti-irritant benefits of a yeast extract. During the fermentation process, a biotransformation takes place creating a capsaicinoid with increased solubility, additional cell metabolism increasing factors and anti-irritant properties.

EFFICACY

Microvascular perfusion was measured using the PeriScan System, which is a Laser Doppler Perfusion Imaging system intended for non-invasive imaging of superficial tissue blood perfusion. The reported results are relative to biological control. A 5-subject panel consisting of 5 Caucasian females between the ages of 32 and 43 was assembled and provided with two products: one containing 1% **AC DermaPeptide MicroC PF** and another containing 3% **AC DermaPeptide MicroC PF**. To ensure accuracy for all tests, panelists abstained from using lotions, creams or any other cosmetic moisturizers on the test site for a period of three days prior to the tests' initiation. The test area was located on the inner forearm region between the wrist and elbow. A gentian violet surgical skin marker and standard template delineated two 2 cm by 2 cm (4cm²) test sites. 1% and 3% **AC DermaPeptide MicroC PF** products were applied at a concentration of 2,0 mg/cm² for three consecutive days. The results clearly indicate that **AC DermaPeptide MicroC PF** significantly increases dermal circulation for improved epidermal dispersion.

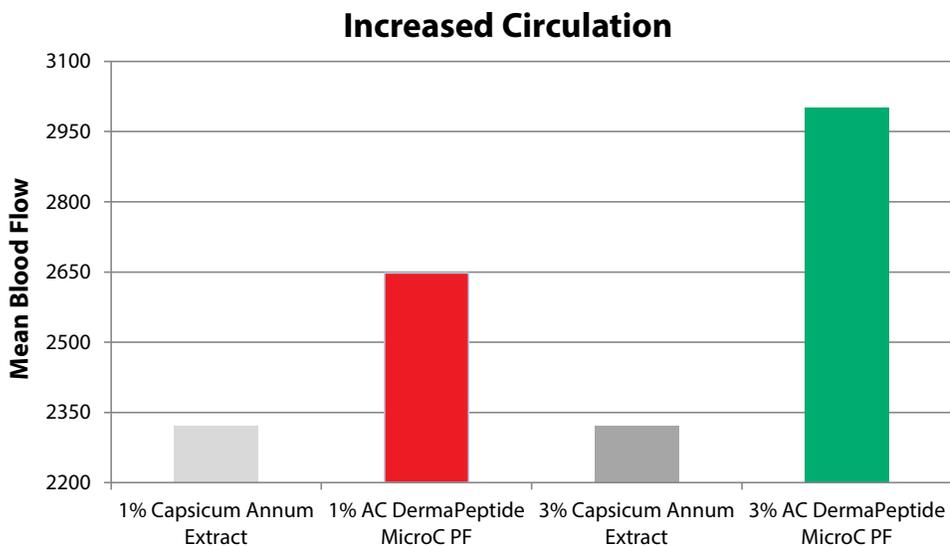


Figure 1. Improvements in blood flow after treatment with test materials.

The same 5-subject panel was used to determine whether or not the use of **AC DermaPeptide MicroC PF** induces epithelial erythema using a Minolta CR-200 Chromameter interfaced with a DP-100 Color Computer System. This system detects subtle changes in color that are imperceptible to the human eye. Although no human erythema is detected with the human eye with the use of either 1% or 3% **AC DermaPeptide MicroC PF**, a slight color change is detectable when using the Minolta CR-200.

AC DermaPeptide MicroC PF

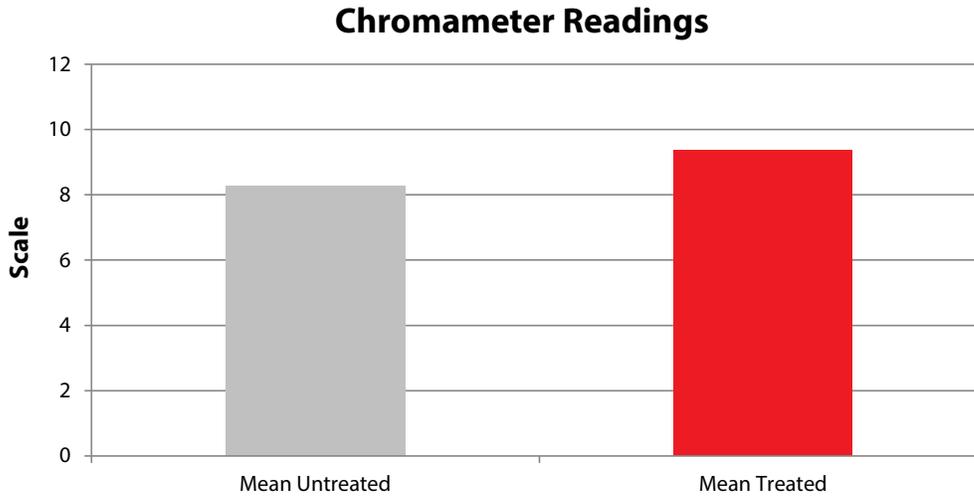


Figure 2. Color changes on the skin following application of **AC DermaPeptide MicroC PF**.

Cell metabolism factors are important for maintaining skin clarity and create a “healthy glow”. Collagen synthesis is important for the improvement of skin’s resiliency, elasticity and texture. Additionally an increase in collagen synthesis is equated with an improvement in the appearance of firm and supple skin.

Unlike most capsicum extracts, **AC DermaPeptide MicroC PF** contains a functional active capsaicinoid that is water-soluble for formulation ease. This product is useful in a variety of products ranging from anti-aging creams, scalp applications, skin clarifiers and soothing or warming lotions and gels developed to stimulate circulation and improve the skins appearance.

References:

- 1) Lee YS, Kang YS, Lee JS, Nicolova S, Kim JA (2004) Involvement of NADPH oxidase-mediated generation of reactive oxygen species in the apoptotic cell death by capsaicin in HepG2 human hepatoma cells. *Free Radic Res.* Apr;38(4):405-12.
- 2) Paik SY, Ra KS, Chang IS, Park YC, Park HS, Baik HS, Yun JW, Choi JW (2003) Purification and characterization of complement-activating acid polysaccharides from the fruits of *Capsicum annuum*. *J Biochem Mol Biol.* Mar 31;36(2):230-6.
- 3) Jeong-Ki Min, Kyu-Yeon Han, Eok-Cheon Kim, Young-Myeong Kim, Sae-Won Lee, Ok-Hee Kim, Kyu-Won Kim, Yong Song Gho, and Young-Guen Kwon (2004) Capsaicin Inhibits in Vitro and in Vivo Angiogenesis *CANCER RESEARCH* 64, 644–651, January 15
- 4) Choi YM, Suh HJ (2004) Pharmacological effects of fermented red pepper. *Phytother Res.* Nov;18(11):884-8.

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