Technical Data Sheet

AC DermaPeptide MicroC PF



Circulation Anti-irritant Anti-irritant enhances collagen synthesis 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 Annuum 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 Irradation 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, Antiirritant

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 annuum* 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 tissure 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.



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.



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 apototic cell death by capsaicin in HepG2human 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, ChoiJW (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.

Active Concepts LLC • Lincolnton, USA • www.activeconceptsllc.com • Tel +1 704-276-7100 • info@activeconceptsllc.com



Active Concepts, America Latina Monterrey, N.L. Mexico www. activeconceptsal.com Office: +52 (81) 1971 9846 info@activeconceptsal.com Active Concepts S.r.l. Milano ITALY www.activeconcepts.it Tel +39 02 90360719 info@activeconcepts.it Active Concepts LLC, Asia Kaohsiung, Taiwan www.activeconceptsllc.com Tel + 886 73599900 josephyeh@activeconceptsllc.com

Information contained in this technical literature is believed to be accurate and is offered in good faith for the benefit of the customer. The company, however, cannot assume any liability or risk involved in the use of its chemical products since the conditions of use are beyond our control. Statements concerning the possible use of our products are not intended as recommendations to use our products in the infringement of any patent. We make no warranty of any kind, expressed or implied, other than that the material conforms to the applicable standard specification. Freedom from patent infringement is not implied. All information is for investigative purposes only.