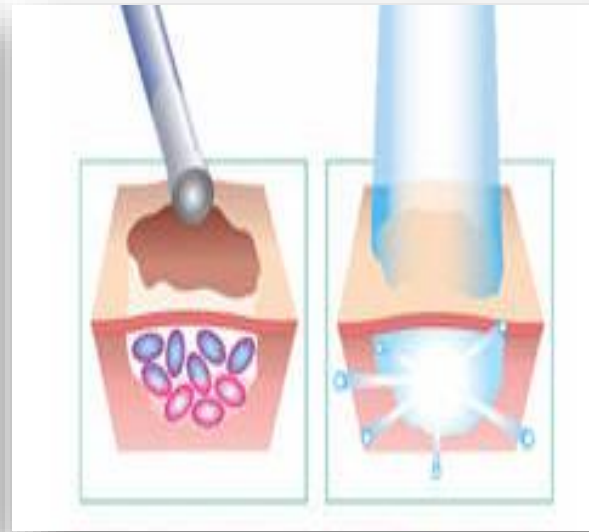


ACB TONKA BEAN BIOFERMENT PF

Chromatherapy + Skin Illuminating + Blurs Wrinkles & Fine Lines



ACB TONKA BEAN BIOFERMENT PF

Technical Information:



Product Code: 20431PF

INCI Name: Lactobacillus/ Dipteryx Odorata Seed Ferment

INCI Status: Approved

Suggested Use Levels: 1.0 – 2.0%

Suggested Applications: Anti-Wrinkle, Chromatherapy, Phototherapy, Anti-Aging, Protectant, Skin Illuminating

Solubility: Water Soluble

LIGHTING + AGING



Appearance of Dull Skin

- Selecting the right lighting is all the rage!
 - Camera filters
 - Technological effects that enhance our appearance
- Dependent on type and direction of light
 - ✓ Shadows
 - ✓ Fine lines
 - ✓ More visible appearance of wrinkles and aging skin
- Skin – Effects of aging and lighting
 - ✓ Proteins in our skin cross-link and diminish the refraction of light
 - ✓ Skin appears dull
 - ✓ Make-up and optical diffusers not particularly helpful

PHOTOTHERAPY + CHROMATHERAPY



Ayurveda Practices

- Therapeutic exposure to sunlight or specific wavelengths of light
- Areas of interest
 - Light to improve the appearance of skin – i.e. blue light has an anti-acne effect great for problem skin
 - Products that emit light
 - Specific colored wavelengths modify the way our skin looks
 - Masks appearance of wrinkles or dermatological conditions

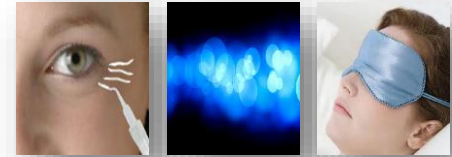
SKIN BRIGHTENING



Past Skin Brightening Techniques

- Typically light diffusers and cellular renewal actives have been used as a means for skin brightening claims
- Cellular Renewal
 - ✓ Actives that physically or chemically remove dead/ dull skin and reveal a refreshed aesthetic
 - ✓ Enzymes, exfoliators
- Diffusers
 - ✓ Diffuse light to minimize the appearance of wrinkles
 - ✓ Do not intensify the refraction of light
 - ✓ Do not full provide the desired brightening benefits

THE FUTURE OF SKIN BRIGHTENING



ACB Tonka Bean Bioferment PF

- An isolate of polyphenols from Tonka Beans
- Polyphenol isolates: Known for their ability to absorb light in the UV range and emit light in the visible spectra
- Created a product that is efficaciously able to increase the skin's luminescence while protecting the skin from future damage
- Polyphenol benefits:
 - ✓ Help even skin tone
 - ✓ Mask imperfections
 - ✓ Provide antioxidant protection from extrinsic damage

ACB TONKA BEAN BIOFERMENT PF



Benefits

- UV rays activate ACB Tonka Bean Bioferment PF and cause the ingredients components to emit visible blue light
 - Blue light can improve inflammatory lesions by inhibiting pro-inflammatory cytokines
 - Blue light (420nm) exhibits phototoxic effects on the heme metabolism of *Propionibacterium acnes*
 - Blue light inhibits this bacteria known to cause acne
- Absorbs light in the UVA and UVB spectra

ACB TONKA BEAN BIOFERMENT PF



Benefits

- Emits light in violet, green, blue, yellow and red visible light spectra improves luminescence
 - ✓ This indicates the product is capable of increasing luminescence
 - ✓ Skin appears healthy and revitalized
- Helps skin appear smooth and even
 - ✓ Illumination helps hide wrinkles and dark circles
 - ✓ Evens skin tone and discoloration

FLUOROPHORES + SKIN BRIGHTENING



What are fluorophores?

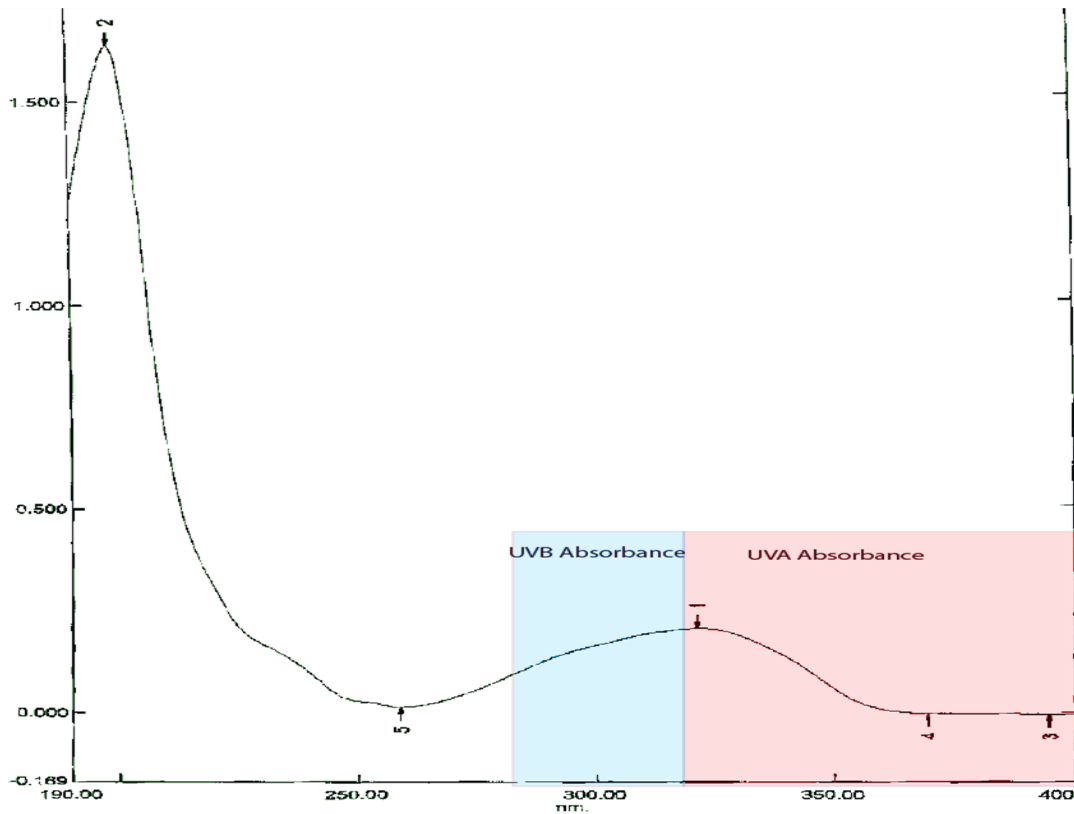
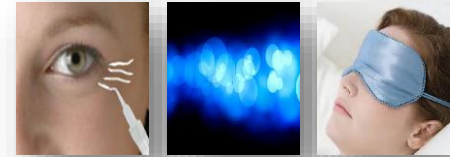
- **Fluorophores** – a fluorochrome (or fluorescent chromophore) covalently bonded to a macromolecule
- Used to stain tissues, cells or materials for fluorescent imaging and spectroscopy

How do Fluorophores work?

- Absorb sunlight in the UV spectra
- Emit light in the visible spectra to counteract dulling effects of other wavelengths (ACB Tonka Bean Bioferment PF emits blue light)
- Increases the overall amount of visible light reflected

ACB TONKA BEAN BIOFERMENT PF EFFICACY DATA

UV Spectrophotometer Study



Protocol

- Fluorometer was used to determine the fluorescence of ACB Tonka Bean Bioferment PF
- Four emission wavelengths were tested:
 - 405nm (violet)
 - 518 nm (green)
 - 590 nm (yellow)
 - 646 nm (red)

ACB TONKA BEAN BIOFERMENT PF EFFICACY DATA

Analysis of UV Spectrophotometer Results



- Trials were run in triplicate
- ACB Tonka Bean Bioferment PF is capable of absorbing invisible UV light and emitting light in the visible spectrum
- Studies show that it can be used to:
 - ✓ Treat inflammation
 - ✓ Reduce the appearance of problem skin
- Studies show that 420 nm light exhibit phototoxic effects on the heme metabolism of *Propionibacterium acnes*
- It was also shown to improve inflammatory lesions
- Inhibits production of IL-1alpha and ICAM-1 (pro-inflammatory cytokines)

ACB TONKA BEAN BIOFERMENT PF EFFICACY DATA

Fluorescence in Ethanol

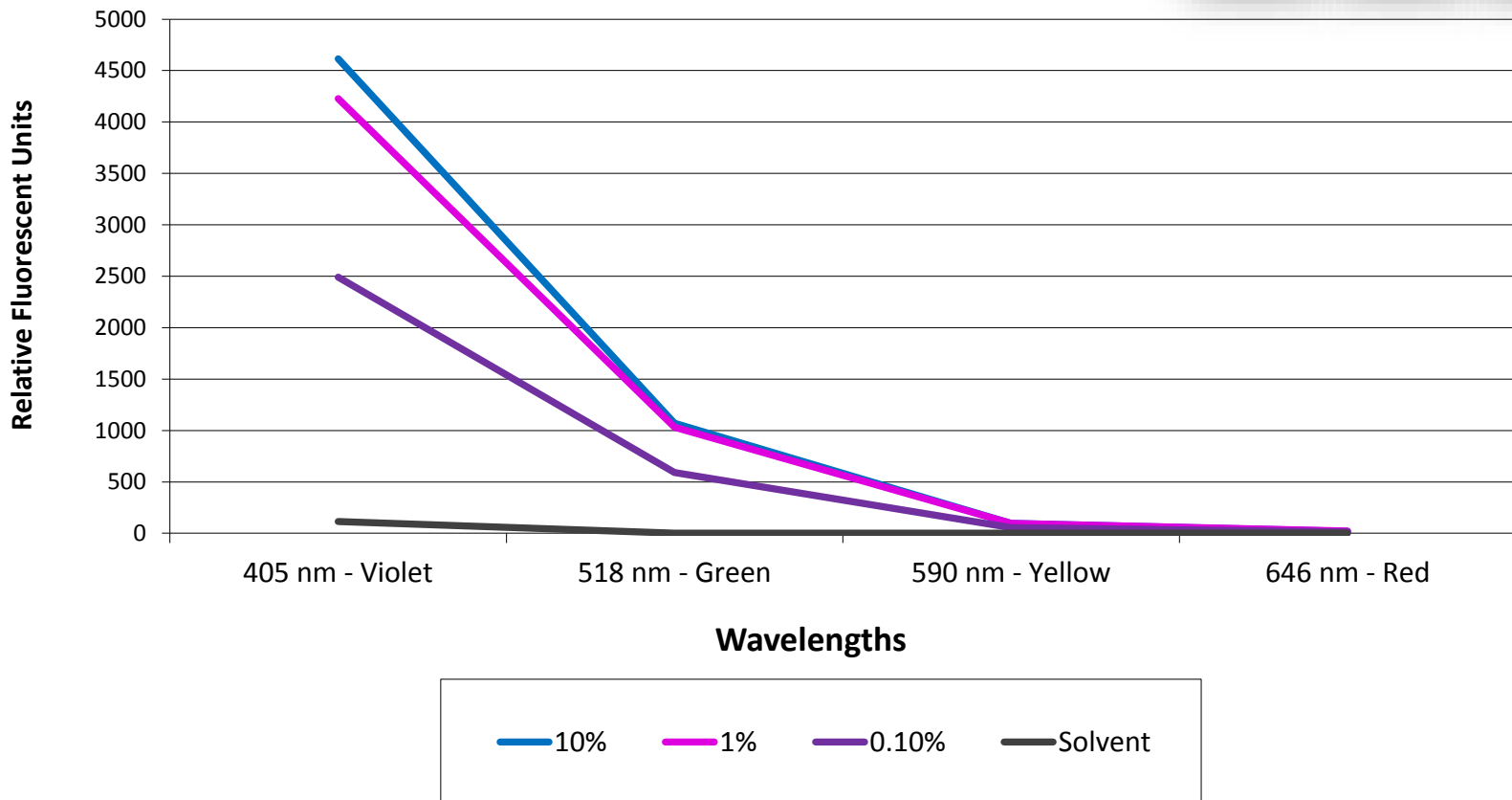


Figure 1. Fluorescence of light after dispersing ACB Tonka Bean Bioferment PF in Ethanol

ACB TONKA BEAN BIOFERMENT PF EFFICACY DATA

Fluorescence in Water

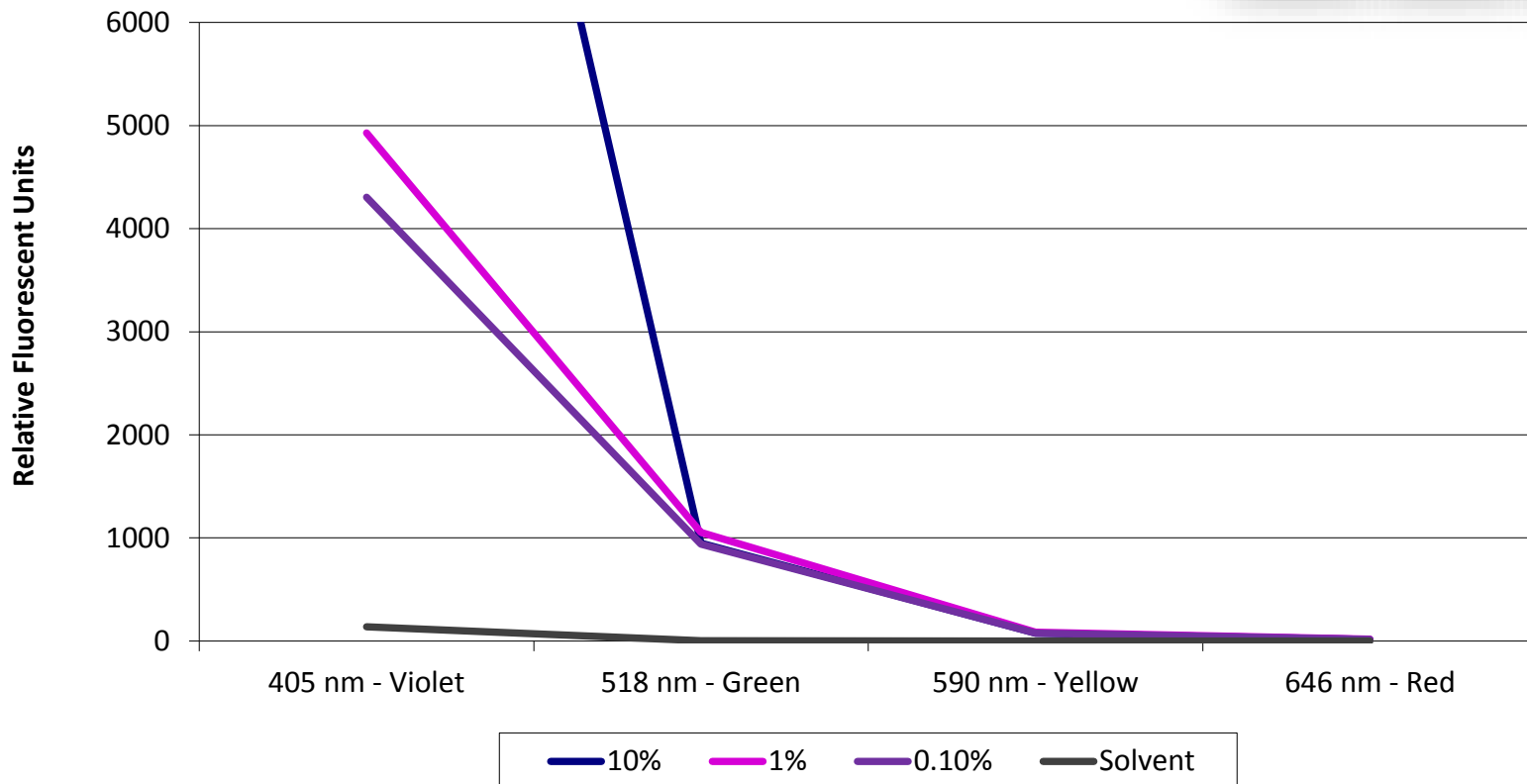


Figure 2. Fluorescence of light after dispersing ACB Tonka Bean Bioferment PF in water. Fluorescence at the 10% concentration was above the detectable limits of the fluorometer.

ACB TONKA BEAN BIOFERMENT PF



Cosmetic Benefits

- ✓ UV absorption
- ✓ Hides fine lines and wrinkles
- ✓ New approach to light diffusing products
 - Hides wrinkles from the inside out
 - Emits light from within the wrinkle itself
- ✓ Treatment for problem skin
- ✓ Soothing

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