

Distinctive[®] Blueberry

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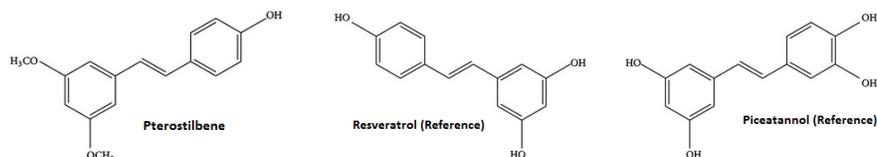
Powerful Age-Defying Antioxidant

Blueberries are not only delicious; they are considered a superfruit, naturally concentrated with antioxidants and other anti-aging phytochemicals. The “lowbush” or “wild” blueberry is a hardy deciduous shrub native to North America. Compared to cultivated blueberries, lowbush blueberries are more flavorful and contain a higher concentration of phytochemicals such as anthocyanin, providing powerful antioxidant and anti-inflammatory properties that may help protect against diseases.



Recent studies have correlated the high antioxidant activity of blueberries with their total phenolic content which include a group of compounds called stilbenes:

- ◆ *Resveratrol* – naturally occurring stilbene; anti-oxidative, anti-inflammatory, anti-microbial
- ◆ *Piceatannol* –analogue of resveratrol; displays wide spectrum of biological activity; has been shown to suppress the activation of some transcription factors, including NF-kappaB, which plays a central role as a transcriptional regulator in response to cellular stress caused by free radicals, ultraviolet irradiation, cytokines or microbial antigens
- ◆ *Pterostilbene* – PPAR α agonist; an alternate mechanism to tyrosinase inhibition for skin lightening



Distinctive[®] Blueberry is a new skin care ingredient that captures the natural age-fighting compounds of blueberries, providing powerful skin protection against premature aging and hyperpigmentation. Distinctive[®] Blueberry protects skin from external and intrinsic aggressors such as sun exposure, inflammation, hormonal changes, skin injuries and acne. It is a safe and effective natural alternative to hydroquinone and kojic acid for fading dark spots such as freckles, melasma or chloasma, age spots and scarring.

BENEFITS

- ◆ Colorless
- ◆ Natural
- ◆ Antioxidant
- ◆ Anti-microbial
- ◆ Protective
- ◆ Melanin Inhibition
- ◆ Radical scavenging activity
- ◆ Chemically/thermally stable

APPLICATIONS

- ◆ Sun protection
- ◆ Under eye
- ◆ Skin brightening
- ◆ Anti-aging
- ◆ Anti-acne
- ◆ Sensitive skin

Distinctive® Blueberry

TYPICAL PROPERTIES

	Distinctive®Blueberry 5P (DC3952)	Distinctive®Blueberry 5CCT (DC4007)
INCI	Propanediol (and) Vaccinium Angustifolium (Blueberry) Fruit Extract	Caprylic/Capric Triglyceride (and) Vaccinium Angustifolium Blueberry) Fruit Extract
Appearance	Clear liquid	Clear to Pale Yellow, transparent liquid
Solubility	Glycols and polar oils	Oil

FORMULATION GUIDELINES

Recommended use level 1-4 %

MELANIN PRODUCTION BY MELANOCYTES

Overproduction of melanin can cause discoloration of the skin. The inhibitory effect of melanin production by Distinctive® Blueberry 5P was evaluated on melanocytes.

Test Material	Pigmentation (% Water Control)	P Value
H2O	100	1.000
Distinctive® Blueberry 5P 50µg/ml	67	0.000
Distinctive® Blueberry 5P 25µg/ml	79	0.000
Distinctive® Blueberry 5P 12.5µg/ml	89	0.004
Distinctive® Blueberry 5P 6.25µg/ml	95	0.146
Kojic Acid 100µg/ml	18	0.000
Kojic Acid 20µg/ml	48	0.000

Colorimetric quantification determined that Distinctive® Blueberry 5P exhibited a dose-dependent inhibitory effect on the production of melanin by melanocytes.

COMPARISON OF ORAC VALUES (ANTIOXIDANT ACTIVITY) IN FRESH FRUIT

Because of its damaging effect on vital biological systems, reactive oxygen species (ROS)-induced oxidative stress has been implicated in more than 100 diseases and aging (Ames et al.,1993). The oxygen radical absorbance capacity (ORAC) assay quantifies the oxidative activity of peroxy radicals - some of the most common reactive oxygen species found in the body -toxic inductors of cancer, neurodegenerative and other inflammatory diseases.

Test Material	Total ORAC (micromoles TE/g)
Distinctive Blueberry 5P	1517
<i>Acai fruit (freeze-dried OptiAcai)</i>	1027
<i>Acai fruit (fresh)</i>	185
Cranberry	95
Blueberry (low bush)	93
Plums (black)	73
Blueberry (cultivated)	62
Blackberry	53
Raspberry	49
Apple, Red Delicious (with peel)	43

Distinctive® Blueberry 5P displays a strong anti-oxidant activity compared to other natural fruits

REFERENCES

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