

Supplementary material

Fungal melanin as a biocompatible broad-spectrum sunscreen with high antioxidant activity

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Fig. S1. Melanin powder in NH_4OH solution before and after treatment of ultrasonification.

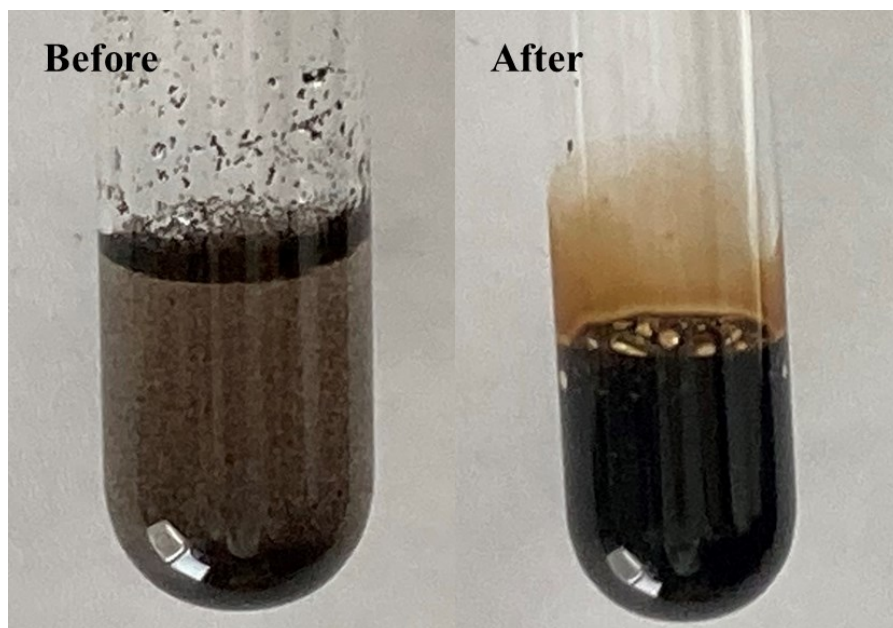


Table S1. Active and inactive ingredients of purchased pure cream.

Cream	Active ingredients	Inactive ingredients
NIVEA Soft Light Moisturiser	-	Water, Glycerin, Mineral Oil, Myristyl alcohol, Butylene glycol, Alcohol denat., Stearic acid, Myristyl myristate, Microcrystalline wax, Glyceryl stearate, Hydrogenated coco-glycerides, Simmondsia chinensis (jojoba) seed oil, Tocopheryl acetate, Lanolin alcohol (Eucerit®), Polyglyceryl-2 caprate, Dimethicone, Carbomer, Sodium hydroxide, Phenoxyethanol fragrance.

Table S2. Comparison of *in vitro* SPF and critical wavelength between fungal melanin and

Types of broad-spectrum sunscreen	SPF	λ_c (nm)
Fungal melanin derived from <i>A. resiniae</i>	2.5	388
Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine (Tinosorb® S)	12.0	370
Butyl Methoxydibenzoylmethane	4.5	380
Diethylamino Hydroxybenzoyl Hexyl Benzoate (Uvinul® A Plus)	3.4	379
Disodium Phenyl Dibenzimidazole Tetrasulfonate	7.5	364
Drometrizole Trisiloxane	6.4	371
Menthyl Anthranilate	2.5	363
Methylene Bis-Benzotriazolyl Tetramethylbutylphenol (nano), active amount (Tinosorb® M)	7.3	383
Terephthalylidene Dicamphor Sulfonic Acid	6.6	372
Zinc Oxide (nano) hydrophilic or lipophilic phase (Z-Cote®)	2.8	384
Zinc Oxide (nano) lipophilic phase (Z-Cote® HP1)	3.8	377
conventional broad-spectrum sunscreen at the same concentration (5%, w/w)		

* These data were obtained from BASF Sunscreen Simulator.