An antioxidant and free-radical scavenger

Natural, botanical origin

SPF 50+ product with 3% GranLux® AOX-G5

KOKO TEST	Inocultion cycle						
Actives	0	1	2	3	4	5	6
1 0,3 % Sensiva SC50 1,0 % Euxyl PE9010	–	–	–	+ yeasts	+ yeasts molds	+ yeasts molds	++ yeasts molds
2 0,5 % Sensiva SC50 1,0 % Euxyl PE9010	–	–	–	–	–	–	–
3 0,5 % Sensiva SC 50 3,0 % GranLux® AOX-G5	–	–	–	–	–	–	–
4 0,3 % Sensiva SC 50 3,0 % GranLux® AOX-G5	–	–	–	–	–	–	–

– no growth
\+ slight growth
++ moderate growth
+++ massive growth

Picea Abies Extract Inhibition Effect Low value better

Reaction	GranLux®	BHA	BHT	Vit. E
1 Inhibation of lipid peroxidation µM, IC50	0,06	1,1	15,3	0,02
2 Inhibation of LDL oxidation nmol/mg, IC50	6			22
3 Superoxide anion scavenging µM, IC50	5,6	15	>1000	25
4 Peroxyl radical scavenging, stoichiometric ratio	1:4			1:2

Vit. E: water soluble tocopherol derivate
BHA: butylated hydroxyanisol
BHT: butylated hydroxytoluene
IC50: concentration of test materials inhibiting 50 % of reaction

1 Peroxydation of microsomal lipids by t-butylhydroxide, detection by chemiluminescence
2 Isolated human low density lipoprotein (LDL) was oxydated by copper in vitro, detection by spectroscopometric diene conjugation analysis
3 Superoxide was produced by xanthine-xanthine oxidase system, detection by chemiluminescence
4 Peroxyl radicals were generated by thermal decomposition of 2,2`-azo-bis (amidinopropan) hydrochloride detection by chemiluminescence, results as one molecule of test substance scavenging n molecules of peroxyl radicals

Comparison between antioxidants

Property	GranLux® AOX	Vitamins	BHA BHT
Inhibition reactions	++++	++	+
Heat stability	++++	-	+++
Reaction speed	+++	++++	+
UV-stability	+++	-	+++
Multipurpose	++++	+	+
Low Cytotoxicity	++++	++++	--

++++ Excellent
+++ Very good
++ Good
\+ Fair
\- Low
-- Poor

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