

Supplementary material

Supplementary Figure S1. Certificate of analysis (COA) for beeswax alcohol (BWA) from inspection of imported food, issued by Korean FDA

Print date: October 5, 2022

Inspection results for imported food, etc.

Import declaration person (Import shipper)	Mutual	Reidel Korea Co., Ltd.	Representative	Lee Kyung-ye
	Address	Room 203, 2nd floor, 13-10 Gangnam-daero 39-gil, Seocho-gu, Seoul (Seocho-dong, Halla Vivavdi Studio)		
Registration Number	202200608546		Date of receipt	September 26, 2022
Product name				
Type of inspection				
Requesting Agency				
Request number				
Inspection Agency				
Judgment				

정보공개용 자료

Test/Inspection Item name	Standard	Result	Judgment	Note
Appearance			Pass	010-1) Sample
Octacosanol			Pass	010-1) Sample
1-triacotanol	① 1-tetracosanol(C24): 60~150mg/g ② 1-hexacosanol (C26):	292.25	Pass	Beeswax alcohol (No. 2010-1) sample
1-dotriacotanol	① 1-tetracosanol(C24): 60~150mg/g ② 1-hexacosanol (C26):	222.97	Pass	Beeswax alcohol (No. 2010-1) sample
1-tetracosanol, 1-hexacosanol, 1-octacosanol, 1-triacotanol, 1-dotriacotanol,	① 1-tetracosanol(C24): 60~150mg/g ② 1-hexacosanol (C26):	859.79	Pass	Beeswax alcohol (No. 2010-1) sample
Lead	0.5 or less	0.1	Pass	Beeswax alcohol (No. 2010-1) sample
Total arsenic	0.1 or less	Not detected	Pass	Beeswax alcohol (No. 2010-1) sample
Total mercury	0.5 or less	Not detected	Pass	Beeswax alcohol (No. 2010-1) sample
Cadmium	0.5 or less	Not detected	Pass	Beeswax alcohol (No. 2010-1) sample
Acetone	30.0 or less	2.73	Pass	Beeswax alcohol (No. 2010-1) sample
Hexane	5.0 or less	0.44	Pass	Beeswax alcohol (No. 2010-1) sample
1-tetracosanol	① 1-tetracosanol(C24): 60~150mg/g ② 1-hexacosanol (C26):	63.67	Pass	Beeswax alcohol (No. 2010-1) sample
1-Hexacosanol	① 1-tetracosanol(C24): 60~150mg/g ② 1-hexacosanol (C26):	114.28	Pass	Beeswax alcohol (No. 2010-1) sample

Test/Inspection Item name	Standard	Result	Judgment	Note
Coliforms	voice	voice	Pass	Beeswax alcohol (No. 2010-1) sample
Fatty alcohol	① 1-tetracosanol(C24): 60~150mg/g ② 1-hexacosanol (C26):	30.62	Pass	Beeswax alcohol (No. 2010-1) sample

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September 30, 2022

Director of the Korea Food Science Research Institute, an affiliate of the Korea Food Industry Association

Inspection results for imported food, etc.

Imported food, etc. (Import shipper)	Mutuel	Reidel Korea Co., Ltd.	Import date	See Receipt
	address	Room 205, 2nd floor, 15-10 Gangnam-daero 39-gil, Seocho-gu, Seoul (Seocho-dong, Halla Vivid Studio)		
Requester Number	202200608546		Date of receipt	September 26, 2022
product name				
Type of inspection				
Requesting Agency				
Request number				
Inspection Agency				
Judgment				

Test/Inspection Item name	result	result	Judgment	note
Desulfonylchlorosilide				
glimepiride				
glibenclamide	Not detected	Not detected	Fitness	Sample (T)
glee closet	Not detected	Not detected	Fitness	Sample (T)
glyphigit	Not detected	Not detected	Fitness	Sample (T)
nomeobardenafil	Not detected	Not detected	Fitness	Sample (T)
Norneosildenafil	Not detected	Not detected	Fitness	Sample (T)
Nitrodenafil	Not detected	Not detected	Fitness	Sample (T)
dimethyl reddenafl	Not detected	Not detected	Fitness	Sample (T)
desulfovadenafil	Not detected	Not detected	Fitness	Sample (T)
Desmethyisbutramine	Not detected	Not detected	Fitness	Sample (T)
DiDesmethyisbutramine	Not detected	Not detected	Fitness	Sample (T)
Dimethylsildenafil	Not detected	Not detected	Fitness	Sample (T)

Test/Inspection Item name	result	result	Judgment	note
Dimethylthiosildenafil	Not detected	Not detected	Fitness	Sample (T)
Dichlorodenafil	Not detected	Not detected	Fitness	Sample (T)
Levothyroxine	Not detected	Not detected	Fitness	Sample (T)
Liocronine	Not detected	Not detected	Fitness	Sample (T)
Mirodenafil	Not detected	Not detected	Fitness	Sample (T)
vardenafil	Not detected	Not detected	Fitness	Sample (T)
Benzylsildenafil	Not detected	Not detected	Fitness	Sample (T)
pseudovardenafil	Not detected	Not detected	Fitness	Sample (T)
Sibutramine	Not detected	Not detected	Fitness	Sample (T)
Cinnamildenafil	Not detected	Not detected	Fitness	Sample (T)
Slidenafil	Not detected	Not detected	Fitness	Sample (T)
Cyclopentinafil	Not detected	Not detected	Fitness	Sample (T)
Aminotadafafi	Not detected	Not detected	Fitness	Sample (T)
Acetylvaridenafil	Not detected	Not detected	Fitness	Sample (T)
ephedrine	Not detected	Not detected	Fitness	Sample (T)
orlistat	Not detected	Not detected	Fitness	Sample (T)
Oxohongdenafil	Not detected	Not detected	Fitness	Sample (T)
octylnoradafafi	Not detected	Not detected	Fitness	Sample (T)
Udenafil	Not detected	Not detected	Fitness	Sample (T)
xanthoxanthraphyll	Not detected	Not detected	Fitness	Sample (T)
Thiosildenafil	Not detected	Not detected	Fitness	Sample (T)
Thioquina Piperipil	Not detected	Not detected	Fitness	Sample (T)
Chiohomosildenafil	Not detected	Not detected	Fitness	Sample (T)
Carbodenafil	Not detected	Not detected	Fitness	Sample (T)

Test/Inspection Item name	Article #	result	Judgement	note
chlorodenafil	Not detected	Not detected	Others	Sample (1)
Chloropretadafil	Not detected	Not detected	Others	Sample (1)
tadalafil	Not detected	Not detected	Others	Sample (1)
Fenfuramine	Not detected	Not detected	Others	Sample (1)
piperidino reddenafl	Not detected	Not detected	Others	Sample (1)
Hydroxyvaridenafil	Not detected	Not detected	Others	Sample (1)
Hydroxythiohomosildenafil	Not detected	Not detected	Others	Sample (1)
Hydroxychlorodenafil	Not detected	Not detected	Others	Sample (1)
Hydroxyhomosildenafil	Not detected	Not detected	Others	Sample (1)
Hydroxydenafil	Not detected	Not detected	Others	Sample (1)
homosildenafil	Not detected	Not detected	Others	Sample (1)
Homogdenafil	Not detected	Not detected	Others	Sample (1)
fluoxetine	Not detected	Not detected	Others	Sample (1)
Sennoside	Not detected	Not detected	Others	Sample (1)
Tubamox	Not detected	Not detected	Others	Sample (1)
Phenolphthalein	Not detected	Not detected	Others	Sample (1)
Ikarin	Not detected	Not detected	Others	Sample (1)
N-nitrosufenfuramine	Not detected	Not detected	Others	Sample (1)
Desmethylpiperazinypropoxyside Nafil	Not detected	Not detected	Others	Sample (1)
Acetaminotadalafil	Not detected	Not detected	Others	Sample (1)
Demethyltadalafil	Not detected	Not detected	Others	Sample (1)
avanafil	Not detected	Not detected	Others	Sample (1)
Methylhydroxyhomosildenafil	Not detected	Not detected	Others	Sample (1)
Propoxyphenylthiosildenafil	Not detected	Not detected	Others	Sample (1)

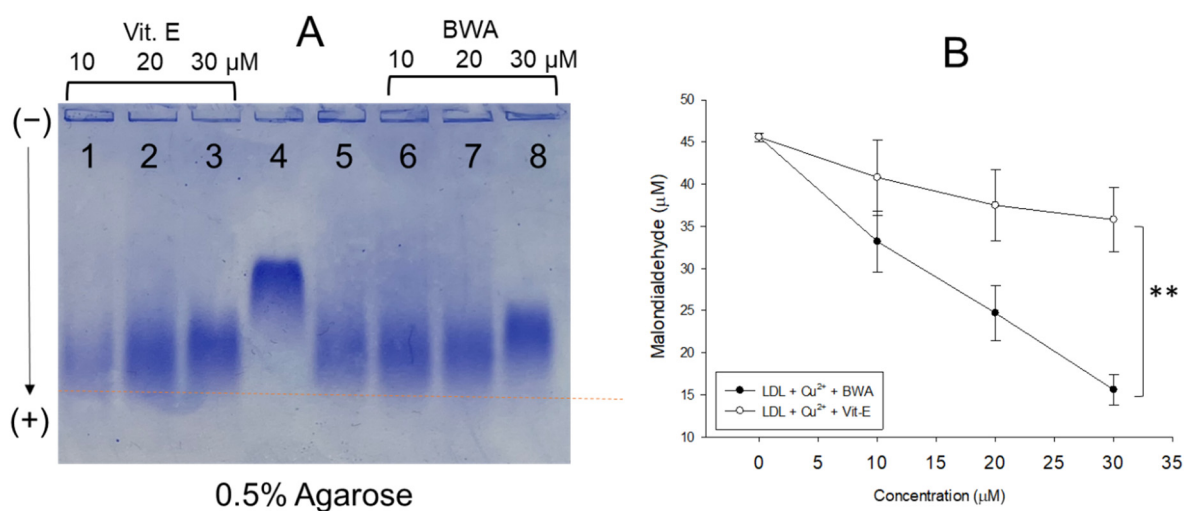
Test/Inspection Item name	Article #	result	Judgement	note
Propoxyphenylthioayildenafil	Not detected	Not detected	Others	Sample (1)
Propoxyphenylthiohydroxyhomosildenafil	Not detected	Not detected	Others	Sample (1)
Propoxyphenylthiohomosildenafil	Not detected	Not detected	Others	Sample (1)
Homotadalafil	Not detected	Not detected	Others	Sample (1)
Chloroxybutramine	Not detected	Not detected	Others	Sample (1)
cis-cyclopentyltadalafil	Not detected	Not detected	Others	Sample (1)
trans-cyclopentyltadalafil	Not detected	Not detected	Others	Sample (1)
Isopropyl Nortadalafil	Not detected	Not detected	Others	Sample (1)
Descarbonylsildenafil	Not detected	Not detected	Others	Sample (1)
Cascaroside	Not detected	Not detected	Others	Sample (1)
Dichloropropyl Carbodenafil	Not detected	Not detected	Others	Sample (1)
Chloroxyphenramine	Not detected	Not detected	Others	Sample (1)
Acrylic acid	Not detected	Not detected	Others	Sample (1)
Gendenafil	Not detected	Not detected	Others	Sample (1)
Imidazogetriazinone	Not detected	Not detected	Others	Sample (1)

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September 29, 2022

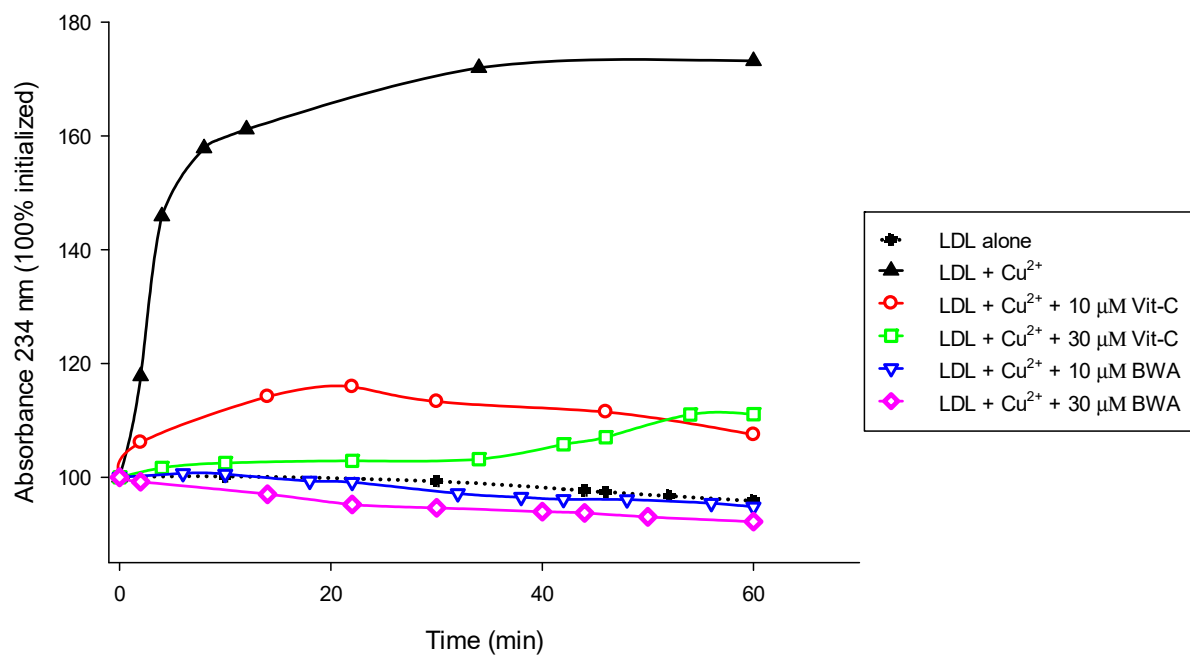
Seoul Regional Food and Drug Safety Administration





Supplementary Figure S2. Effect of beeswax alcohol (BWA) on CuSO_4 induced oxidation of LDL.

- A.** Electrophoretic mobility of apo-B fraction of LDL. Lane 1, 2, 3, represent LDL+ CuSO_4 treated with 10, 20, 30, μ M vitamin E. Lane 4 represents Native LDL, Lane 5 represents LDL+ CuSO_4 (Ox LDL). Lane 6, 7, 8, represent LDL+ CuSO_4 treated with 10, 20, 30, μ M BWA. Electrophoresis was performed on 0.5% agarose gel using Tri-EDTA buffer (pH 8.0) at a constant voltage (50 V). Red-dotted line indicates the similar electromobility of oxidized LDL (lane 5) and Vit-E treated ox-LDL (lane 1–3).
- B.** Quantification of malondialdehyde in the LDL by thiobarbituric acid reactive substances (TBARS) assay. **, $p < 0.01$



Supplementary Figure S3. Continuous monitoring of conjugated diene detection assay with either beeswax alcohol (BWA) or vitamin C (Vit C) under LDL oxidation by cupric ion treatment.