

Food Material for Modulating Oxidative Stress from within

GUARDOX®

GUARDOX, fermented extract of raw coffee beans and rice bran with our proprietary technique is the oxidative stress modulating material.

Advantages of Guardox

- Potential for eliminating excessive active oxygen from within.
- Low molecular weight, which helps absorption.
- Contains only natural ingredients, no addition of preservative and coloring agent.
- Safe and Its taste matches any foods.
- Sanitary production under strict control.

Chemical components

Inositol-phosphate (IP₁, IP₂, IP₃, IP₄, IP₅, IP₆)

Chlorogenic acid

Amino acid (Asp, Met, Thr, Ser, Ler, Leu, Glu, Tyr, Phe, Gly, Lys, Ala, His, Val, Arg, Ile and Trp, etc.)

Minerals (P, Fe, Ca, K, Mg and Na, etc.)

* Above products could exist as polymer owing to fermentation.

Nutritional components

Component	Analysis
Water	2.1 g / 100 g
Protein	6.0 g / 100 g
Fat	0.1 g / 100 g
Fiber	0 g / 100 g
Ash	57.1 g / 100 g
Sugar	34.7 g / 100 g
Sodium	17.7 g / 100 g
Chlorogenic acid	3.1 g / 100 g

Trade name	GUADOX Powder	Manufacturing Process
Generic name	Fermented extract of raw coffee beans and rice bran	Crushing beans ↓ Extraction ↓ Mixing ↓ Fermentation ↓ Compression ↓ Ultrafiltration ↓ Decoloration/deodorizing ↓ Diatomite filtration ↓ Pulverization ↓ Filling ↓ Storage
Label indication	Fermented extract of raw coffee beans and rice bran	
Appearance	Powder	
Doses	0.3 – 0.6g/day 20 mg/day for long term administration 20 mg/day for concomitant administration with other foods	
Standard package	1 kg packed in aluminum bag	
Usages	Highly hygroscopic. Before tableting, homogenize powder well by trituration. Both direct and granule tableting are available.	
Moisture	Not more than 8.5%	
Color	Light yellow to light brown	
Odor	Slight flavor	
Viable cell count	Not more than 3,000/g	
E-Coli	Negative	
Fungi/yeasts	Negative	

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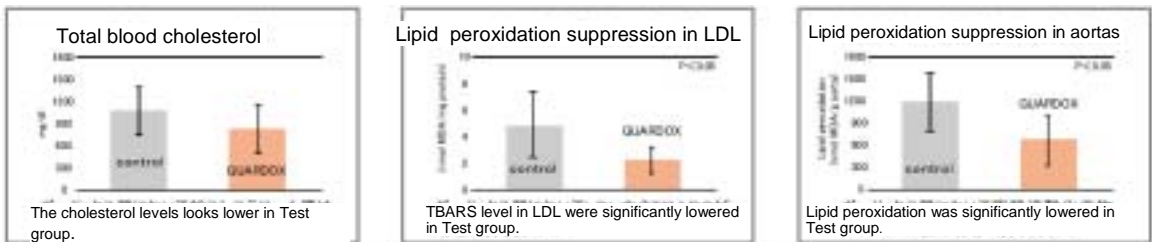
List of Experiments on Guardox®

Anti-arterial sclerosis properties demonstrated

● Test method ●

16 male NZW (New Zealand white) rabbits ranging between 2.0 and 2.5kg in weight were fed with normal feed for one week to get acclimated to the environment. Then, the control group were fed with normal feed mixture containing 1% of cholesterol and and test group fed with normal feed mixture containing 1% of cholesterol and 5% of Guardox at approximately 2g/kg body weight/day for three months. After the feeding, the blood was sampled and the animals were killed for autopsy.

● Results ●



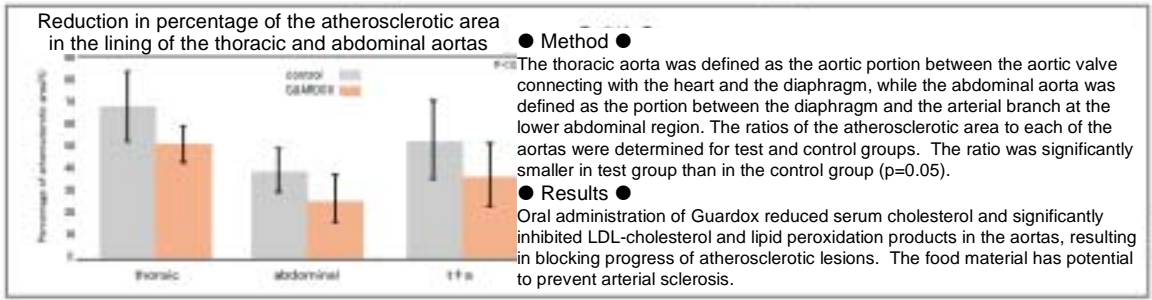
Reduction in percentage of the atherosclerotic area in the lining of the thoracic and abdominal aortas

● Method ●

The thoracic aorta was defined as the aortic portion between the aortic valve connecting with the heart and the diaphragm, while the abdominal aorta was defined as the portion between the diaphragm and the arterial branch at the lower abdominal region. The ratios of the atherosclerotic area to each of the aortas were determined for test and control groups. The ratio was significantly smaller in test group than in the control group (p=0.05).

● Results ●

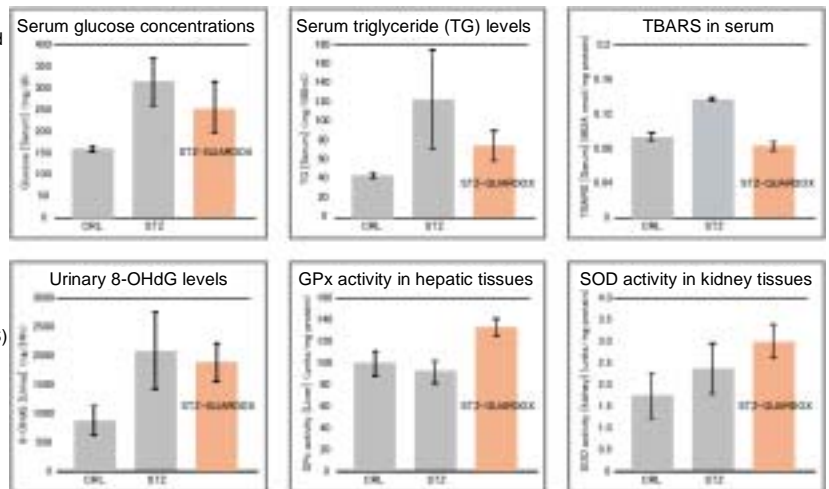
Oral administration of Guardox reduced serum cholesterol and significantly inhibited LDL-cholesterol and lipid peroxidation products in the aortas, resulting in blocking progress of atherosclerotic lesions. The food material has potential to prevent arterial sclerosis.



In vivo antioxidant properties

Diabetes mellitus, one of those life style-related diseases has been rapidly increasing in these years. It is serious because the patients induces complications without self-awareness with disease progress. The complications may be induced by the increased oxidative stress under the hyperglycemic condition.

To evaluate Guardox for capability of eliminating and defending active oxygen and free radicals, Guardox was fed orally by 3.6mg/ animal/ day to model rats with insulin-deficiency diabetes mellitus induced by bystreptozotocin (STZ). The parameters considered included serum lipid components, thiobarbituric acid reactive substances (TBARS) produced as a result of oxidation disorders, urinary 8-OHdG as marker of oxidative DNA damage, activity of glutathione peroxidases (GPx) as glutathione-related enzymes indicative of biological response to oxidative stress, and superoxide dismutase (SOD) activity.



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