



## SPECIFICATION

Product	: Lavital (Dihydroquercetin)
Source	: Dahurian Larch -Larix Gmelinii (Rupr.) Rupr.
Part used	: Stumps
Source of Origin	: Russian Federation
Chemical family	: Bioflavonoids
Formula	: Mixture of flavonoids, featuring dihydroquercetin
Composition	: Dihydroquercetin (taxifolin) - min. 90% by weight
Other ingredients	: Aromadendrin, eriodictyol, quercetin, naringenin, pinocembrin - max. 10% by weight
Identification	: HPLC method
Physical state	: Solid powder
Colour	: White to light yellow
Solubility	: Soluble in ethanol, water-ethanol solutions, ethyl acetate; weakly soluble in water, oils; insoluble in chloroform, ether, benzene
Extraction solvent	: Aqueous-alcohol solution
Stability	: Stable at normal conditions of at least 5 years

## DOSAGE OF INTRODUCTION

Product	Amount
Beef, Chicken, Pork	0.02% by lipid mass
Fish (chilled salmon)	Spraying with 1% water solution of ethanol
Fish (mackerel)	0.006% by mass
Ground beef	0.05-0.075% by mass
Ground chicken	0.025 by mass
Ground meat for boiled and smoked, smoked and dried sausages	0.01-0.05% by raw material mass
Ground meat, made from mechanically deboned chicken	0.02-0.04% by lipid mass
Melted chicken fat, which already at the initial stage of oxidation	0.01% by fat mass
Melted lard, raw pork fat	0.02% by lipid mass
Poultry fresh-jerked sausage	0.02% by lipid mass
Semi-finished food products	0.02% by raw material mass
Butter	0.025% by fat mass
Condensed milk	NMT 1% by fat mass
Condensed milk with sugar	0.05 kg per 100 kg of a product
Cottage cheese	0.02% by fat mass
Curd dessert with 55% fats	0.025% by fat mass
Dry milk, dry whole milk	0.02% by fat mass
Dry soymilk concentrate	0.025% by fat mass
Mayonnaise with up to 50% fats	0.02% by fat mass
Milk, Milk products made of whole milk, pasteurized milk	0.02% by fat mass
Processed cheese	0.02% by fat mass
Cacao butter	0.2 - 0.5% by lipid mass
Cacao powder	0.2% by lipid mass
Chocolate	0.02% by lipid mass
Confectioneries on fat basis	0.2 - 0.5% by lipid mass
Confectionery fat	1.0 - 2.0% by lipid mass
Hazelnut oil	0.05% by raw mass
Kernel nuts	0.2 - 1.0% by lipid mass
Beverages	10-20 mg/0.5 L
Beverages on the basis of mineral water	20-30 mg/L
Mineral water	15-20 mg/L
Juice	15-20 mg/L
Kvass	10-20 mg/dm <sup>3</sup>
Vodka	4-10 mg/L
Tea composition on the basis of	2-20 g/kg

## Taxifolin-Rich Extract/ DIHYDROQUERCETIN in Food Industry



Raw Material for production of dietary supplements, functional and food products, sport nutrition

## Advantages

- ★ Natural antioxidant to prevent rancidity and lipid peroxidation of fats and oils;
- ★ Extends shelf life;
- ★ Increases the biological value;
- ★ Preserves the original organoleptic characteristics during storage;
- ★ Enrichment of food products with antioxidants;
- ★ Supplies the product with parapharmaceutical properties;
- ★ Non-toxic, physiologically harmless for human;
- ★ Authorized the placing on the EU market as the novel food ingredient in production of dietary supplements and food products;



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The use of Dihydroquercetin in food products is determined by its ability to reduce the oxidative reactions and to strengthen capillaries and by its pronounced P-vitamin activity. The utilization of these properties can be beneficial in two directions:

- as an antioxidant, Dihydroquercetin can reduce lipid peroxidation, with the consequent prolongation of food products shelf life; and
  - because of its capillary-strengthening properties and P-vitamin activity, Dihydroquercetin can be used for functional products that are aimed at enhancing health.
- Dihydroquercetin is used for manufacturing of the dairy products, meat products, alcoholic and nonalcoholic beverages, confectionery, and products of functional nutrition.



# WHY TAXIFOLIIN-RICH EXTRACT - LAVITOL (DIHYDROQUERCETIN)?

BEVERAGES

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## DAIRY PRODUCTS

**Butter:** Inhibits the formation of the secondary products of oxidation; decreases accumulation of primary and secondary products of oxidation and lowers the levels of carbonyl compounds;  
**Condensed milk:** Inhibits the formation of free radicals at earlier stages of storage; preserves organoleptic indices; extends shelf life;  
**Cottage cheese:** Inhibits the production of aldehydes and extends the shelf life;  
**Dry milk:** Reduces flavor deterioration; inhibits lipid peroxidation and oxidative rancidity in 3 times; extends shelf life to 24 months;  
**Milk:** Prevents oxidation flavor changes; inhibits the development of spontaneous oxidation;  
**Processed cheese:** Prevents the accumulation of the primary oxidation products and extends the product's shelf life to 150 days;  
**Sour cream:** Prevents from oxidation, lowers the level of carbonyl compounds and increases its shelf life to 40 days;  
**Sour milk products:** Preserves viability of Lactobacilli, and physico-chemical properties.

Carbonated soft drinks, portable and mineral water: fortification of water with dihydroquercetin increases energy and well-being; gives the parapharmaceutical properties;

**Non-alcoholic beverages:** neutralizes and blocks free radicals; improves organoleptic characteristics; can be used for functional soft-drinks that are aimed at enhancing health;

**Juices:** extends shelf life due to prevention reactions of free-radical oxidation, fermentation and mould formation.

**Kvass:** suppresses the function of yeast reproduction, decreases its viability; decreases the oxygen concentration; decreases the oxygen concentration;

**Beer:** suppresses the yeast reproduction and viability and decreases the oxygen concentration; stabilizes redox potential, improves the products' shelf life; preserves organoleptic properties;

**Vodka and other alcoholic drinks:** artificial aging of wines, spirits and cognacs; improves taste and quality of alcoholic drinks; prevents hangover; protects the liver from destruction by toxicants; makes taste milder and more delicate.



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## MEAT PRODUCTS

**Beef:** Decreases the rate of accumulation of the primary products of oxidation; preserves its original odor, color and consistency;  
**Chicken:** Decreases the accumulation of the primary products of oxidation; decreases the accumulation of free fatty acids, of peroxides and the formation of secondary oxidation products; preserves organoleptic properties of the product;  
**Ground beef:** Decreases the accumulation of free fatty acids; inhibits the formation of the primary oxidation products;  
**Ground chicken:** Decreases the accumulation of the primary oxidation products;  
**Ground meat (pork + beef):** Lowers the accumulation of free fatty acids and the production of the primary and secondary products of oxidation.  
**Pork:** Decreases the accumulation of the primary oxidation products.  
**Semi-smoked sausage:** Decreased accumulation of peroxides and free fatty acids.  
**Shish-kebab made from pork:** Inhibits the formation of primary and secondary oxidation products; -Inhibits the growth of microorganisms.

## CONFECTIONERY PRODUCTS

**Chocolate:** decreases the intensity of chemiluminescence; inhibits the oxidation process and lowers the level of oxidation products (saturated aldehydes, carbonyl acids); maintains the quality of the product and promotes an increase in the product's shelf life in 2 - 2,5 times; supplies the product with parapharmaceutical properties;  
**Cacao butter:** inhibits peroxidation of lipids; increases shelf life;  
**Chocolate candies:** inhibits oxidation processes; increases the level of oxidation products (saturated aldehydes, carbonyl acids);  
**Cacao powder:** the addition of Dihydroquercetin results in the chemoluminescence intensity; inhibits lipid peroxidation;  
**Confectionery fat:** results in the chemoluminescence intensity; inhibits lipid peroxidation.

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## FUNCTIONAL FOOD FOR ATHLETES

- Doesn't contain doping components;  
- Fortification of the diet of highly trained athletes with dihydroquercetin contributes to the improvement of speed power capabilities of the neuromuscular system, aerobic and anaerobic performance;  
- Dihydroquercetin inhibits the process of «acidification» of the muscles, increases the number of reps;  
- Helps to normalize the functional state of body systems, to stimulate processes of cellular respiration and increases emotional stability and physical performance of athletes;  
- Provides the body's resistance to heavy physical activity and shortens the period of adaptation to extreme environmental factors, has beneficial effects on the cardiovascular system;  
- Reduces the negative effects of intense physical exertion.



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## SEAFOOD PRODUCTS

**Fish (Chilled salmon):** preserves organoleptic properties;  
**Fish (halibut, herring):** lowers the accumulation of the primary oxidation products; preserves the initial organoleptic properties  
**Mackerel:** lowers the levels of free fatty acids and the primary oxidation products; decreases the level of acidic value and peroxide values.

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## FAST FOOD

- **Potato chips:** the fortification with Dihydroquercetin reduces the level of acrylamide by 30 to 70%; doesn't affect the color, taste and flavor;  
- **Edible and frying oils:** increases the resistance of cottonseed oil to oxidation; inhibits the formation of peroxides; improves the stability of refined, bleached and deodorized palm oil; inhibits the formation of malonyldialdehyde; increases the period of induction

