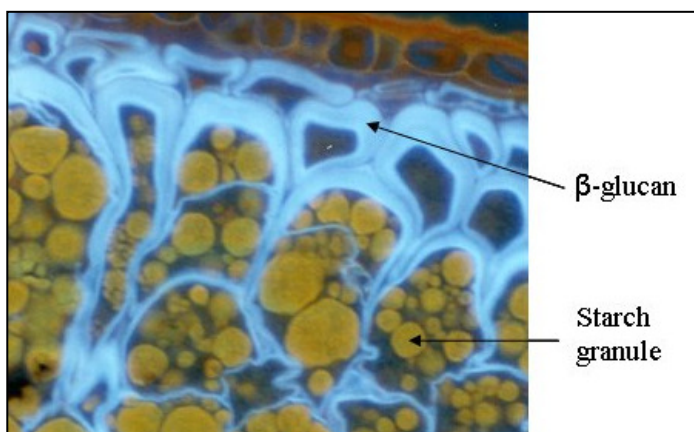


Oat beta glucans

Oat bran is produced by removing the starchy content of the grain. It is rich in dietary fibers, especially in soluble fibers, present in the inner periphery of the kernel. Oats contain more soluble fibers than any other grain, resulting in slower digestion and an extended sensation of fullness, among other things.



Oat is a rich source of the water-soluble fiber (1,3/1,4) β -glucan, and its effects on health have been extensively studied over the last 30 years. Oat β -glucans can be highly concentrated in different types of oat brans. The beta glucan content varies, from 3-5% depending on variety when it grows in the field. Rolled oat/oat flakes is about 4% and also wholemeal oat flour about 4%. With Swedish Oat Fiber's specially developed fractionating process, we can do concentrations of beta glucans from 6% up to 32%.

Beta-D-glucans, usually referred to as beta glucans, comprise a class of indigestible polysaccharides widely found in nature in sources such as grains, barley, yeast, bacteria, algae and mushrooms. In oats, they are concentrated in the bran, more precisely in the aleurone and sub-aleurone layer (see picture above).

Oat beta glucan is a natural soluble fiber. It is a viscous polysaccharide made up of units of the monosaccharide D-glucose. Oat beta glucan is composed of mixed-linkage polysaccharides. This means the bonds between the D-glucose units are either beta-(1 \rightarrow 3) linkages or beta-(1 \rightarrow 4) linkages. This type of beta-glucan is also referred to as a mixed-linkage (1 \rightarrow 3), (1 \rightarrow 4)-beta-D-glucan. The (1 \rightarrow 3)-linkages break up the uniform structure of the beta-D-glucan molecule and make it soluble and flexible. In comparison, the indigestible polysaccharide cellulose is also a beta glucan, but is not soluble. The reason it is insoluble is cellulose consists only of (1 \rightarrow 4)-beta-D-linkages.

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Oat beta glucans are large molecules. Originally in the oat kernel, it is composed of up to 200,000 glucose units, which gives molecular weights in the range of 1500-3000 kDa. It is this native structure that the production process at Swedish Oat Fiber preserves, not destructing the molecular weight during fractionating into the oat brans with high amount of beta glucans. For more details, see the separate section about molecular weight.

Oats are generally considered more healthy and nutritious than the other main cereals, well-known for the benefits of digestion and eaten during hundreds of years by both animals and humans. Today many health-oriented people have their oat porridge every morning as breakfast.

One of the more clinical breakthroughs was the discovery of oat beta glucan cholesterol-lowering properties, especially for the metabolic syndrome. In the last years, clinical studies have proved health benefits like avoiding heart diseases by maintaining/lowering cholesterol, decreased blood sugar response after eating – and also improving the gut health.

Cardiovascular disease (CVD) has been identified by the World Health Organization as the number one cause of mortality globally. High cholesterol is a risk factor in the development of coronary heart disease. The latest research demonstrates that oats and oat beta glucan can be recommended as part of a healthy diet to reduce the risk of CVD.

Oats are a naturally rich source of beta-glucan. The effect of oat beta-glucan on both serum cholesterol and blood glucose reduction is proven. Internationally recognized associations, such as the European Society of Cardiology and the US National Cholesterol Education Program, and the recent meta-analysis, support the role of oat beta-glucan, and specifically its viscosity in lowering blood cholesterol levels. It has been established that the consumption of at least 3g per day of oat beta-glucan can achieve a reduction in LDL cholesterol of up to 10% and reduce the risk of CVD by as much as 20%.

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