

HEALTH AND BENEFIT ASPECTS OF ACACIA GUM AS SOLUBLE DIETARY FIBER

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Abstract

Acacia gum, also known as gum Arabic, is obtained from carefully selected stems and branches of Acacia tree which grows in Central Africa (from Senegal to Sudan). This gum is made of hardened sap taken from two species of the acacia tree: Acacia Senegal and Acacia Seyal, fam. Mimosaceae (Leguminosae).

The hardened sap is harvested, dried and grinded into a fine powder throughout variety of technological processes. The received fine acacia gum powder has high water solubility and high molecular weight polysaccharides with low caloric value. The gum has a complex structure with average molecular weight (approx. 350-850 kDa), and it is made of neutral sugars like galactose (44 %), rhamnose (13 %), glucuronic acid (16 %) and arabinose (27 %) residues, uronic acid, protein, polyphenols and minerals like potassium, magnesium and calcium. It is widely employed in food industry, pharmaceutical and cosmetic industry as dietary fiber, emulsifier and stabilizer.

The main research of acacia gum has been made for its dietary value showing high digestive tolerance at the dosage up to 50gr/day, thanks to a progressive colonic fermentation pattern. This clinical study has been made in humans and showed high acceptability of dietary soluble acacia gum fibers. As a comparison was used sucrose (neutral reference) and short-chain fructo-oligosaccharides (FOS). Results show that acacia gum did not induce adverse gastrointestinal effects, not even when consumed at high doses.

Second study made on acacia gum has been successfully tested on healthy and diabetic subjects for its influence on post-prandial glycemia and insulinemia, resulting in lower effects and beneficial health results especially for people at risk for insulin resistance. This study was performed on 12 healthy subjects that consumed 50gr of carbohydrates from white bread. When glycemic and insulin index were evaluated, we have received even lower Glycemic index, making it ideal for inclusion in diets based on low glycemic load foods.

As a conclusion to above made studies, acacia gum has an exceptional health benefit as and dietary fiber, with great digestive tolerance and exceptional digestibility.

Acacia gum, as a source of soluble fiber, reduces the post-prandial glycemic and insulinemic response when replacing sugars in food and drinks.

Key words: acacia gum, soluble fiber, digestive tolerance, glycemic index.