

Benefits of black soybean

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Black soybean (*Glycine max* L. Merr.), is a variety of soybean belonging to the legume family native to East Asia, particularly China. In India, this crop is grown in the limited geographical regions of Garhwal and Kumaon hills of Uttarakhand. Locally, the crop is known as Bhat, and the most common method for consumption is overnight soaking in water followed by boiling. This procedure reduces the anti-nutritional factors and enhances the overall nutritive value. In the Kumaon region, legumes are an important agricultural crop because of their high nutritional and medicinal value. Soybean is a rich source of protein and oil although the conventional more popular yellow genotype contains more oil as it is specifically bred for that purpose. Both varieties are cholesterol-free but contain appreciable quantities of alpha-linolenic acid, a polyunsaturated fatty acid (PUFA) that reduces the risk of cardiovascular diseases. However, the black seed coat genotype has a higher amount of anthocyanins, which is entirely concentrated in its hull. This natural pigment is also responsible for imparting its characteristic blackish-dark purple hue. Studies have shown that these anthocyanins demonstrate anti-obesity and hypolipidemic effects, have high antioxidant activity, stimulate wound healing and prevent inflammation. Black soybean is also rich in isoflavones, especially genistein and daidzein which have exhibited potential antitumour behaviour, displaying slight estrogenic activity and have proven to have therapeutic effects on ovarian and prostate cancer. The legume is also rich in dietary fibre, monounsaturated fatty acid (MUFA), folate, calcium, magnesium, potassium and phosphorus. Studies have also indicated that roasting increases the antioxidant effect and total phenolic content of black soybean and the roasted black soybean seeds provide better protection against reactive oxygen species (ROS) generation than unroasted variety. Thus, further research on this legume would help in developing novel treatment approaches for various diseases.

Keywords: Black soybean, Cardiovascular diseases, Anthocyanin, Antioxidant, Cancer

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