

18 years of research into maca, a native plant of the Peruvian Andes

Maca (*Lepidium meyenii*) is a plant grown at over 4000 m in Peru's Central Andes. It has been consumed for centuries as food by inhabitants of the Peruvian Central Andes due to the nutritional and medicinal properties of its hypocotyls. Maca is present in nature in different varieties according to the color of the hypocotyl. This review summarizes the results of studies about the effects of maca on sexual function, spermatogenesis, female reproductive function, memory, depression and anxiety, and energy as well as effects on benign prostatic hyperplasia, osteoporosis and metabolic syndrome. Its anti-aging effect is also discussed as well as safety in consumption.

Differences have been shown between the effects of the black, yellow and red maca varieties. Black maca shows the best results on spermatogenesis, memory and fatigue, while red maca is the variety that reverses the benign prostatic hyperplasia and experimentally induced osteoporosis. In addition, maca reduces the glucose levels, and its consumption is related to the lowering of blood pressure and an improved health score.

Experimental studies have proven that short and long term consumption don't show in vivo and in vitro toxicity. Although experimental studies have shown that maca has diverse beneficial effects, more clinical studies are needed to confirm these results.

Chronic mountain sickness is a pathology observed only in populations living at high altitude and represents a lack of adaptation to live at high elevations. Maca consumption was associated with reduced prevalence of chronic mountain sickness in adult men and women.

18 years of research in maca, not only have allowed an added value to this natural product, but have also benefited the development of the economy especially those areas where maca is grown, areas that by their nature are quite poor from the point of economic view.

So we have that maca studies, not only benefit science and the final consumer, but also all the links in the production chain.