

Are you using the right type of Maca?

By Peter Bablis D.C., N.D., LAc, Dip. Medical Herbalist, Homeopathy, Dip. Clinical Nutrition, PhD (cand)

As a college lecturer, integrative doctor, and medical herbalist, I have used as well as keenly followed the research into the herb Maca (*Lepidium peruvianum*) over the past five years. In my practice, and in keeping with the research of the late nineties, my focus has always been Maca's use for men in relation to fertility and energy. I used a standard Maca powder for this application with fair success but had never really seen strong or consistent results in women except for improved general energy and wellbeing. However over the last five years, the focus of my lectures and use of particular products has shifted as I have become aware that not all Maca is the same.

About Maca

Maca is an adaptogenic herb cultivated exclusively in the central Peruvian Andes at 12-14,000 feet under harsh natural growing and weather conditions. Adaptogens are an extremely rare class of herb that modulates the body's response by supporting it in dealing with physiological, biochemical, and psychological stressors¹. So rare in fact that Russian researchers studying the mode of action of over 4000 plants found only 12 true adaptogens amongst them. Other common adaptogenic plants include Ginseng, Ashwagandha, Eleuthero, Holy Basil, Licorice, Rhodiola and Schisandra.

Maca has a wide range of active constituents including amino acids, glucosinolates, phytosterols, and alkaloids. But rather than trying to break down and standardize individual active constituents within Maca, it is more interesting to investigate the full spectrum of active constituents of specific phenotypes and the natural synergies of all the active constituents that exist in the individual phenotype. Research has demonstrated that there are in fact 13 different phenotypes within the species *Lepidium peruvianum* (Maca) that exhibit different colors, have different analytical profiles and even in some cases elicit different physiological effects on the body². (Phenotype: the observable physical or biochemical characteristics of an organism, as determined by both genetic makeup and environmental influences).

The Importance of the “Sub Species” or Phenotypes of Maca

Dr. Gustavo F. Gonzales from the Universidad Peruana Cayetano Heredia in Lima, Peru has published some very interesting research regarding different Maca phenotypes in relation to men's health¹. As an example, his research has demonstrated that while the red Maca phenotype will reduce the size of a prostate, other phenotypes won't, or may even increase the size, while black Maca is considered the strongest in energy-promoting properties³.

In addition, Dr. Henry Meissner (Director of Research and Development at Natural Health International San Francisco CA) has published some potentially ground breaking papers on specific, concentrated Maca phenotype combinations. Known as Maca-GO® (or commercially as Femmenessence), these combinations specifically affect hormone levels in post menopausal women^{4,5}. In the double blind, placebo crossover human trials conducted by Meissner, he found that specific phenotype combinations and concentrated levels of all the active ingredients are critical to ensuring actual, measurable physiological effects on hormones, lipids and bone density^{6,7}.

Meissner's research has further evolved this concept of different phenotypes by introducing three concentrated phenotype combination products for women depending on their stage of life. The Femmenessence MacaPause phenotype combination is designed to improve a post menopausal women's hormone production. This combination has resulted in statistically significant increases in estradiol (P<0.001), increases in progesterone and reductions in FSH (P<0.05), with highly significant reductions in menopausal symptoms as well as increases in HDL “good cholesterol”, reductions in LDL “bad cholesterol”, triglycerides and body weight as well as increases in bone density⁸. The Femmenessence MacaLife phenotype concentrated combination is designed to reduce menopausal symptoms and modulate mood associated with peri menopause and the fluctuation of hormones during this stage of life and Femmenessence MacaHarmony is for younger women to address hormone imbalance and PMS and improve fertility^{9,10,11,12}.

My Clinical Experience

In my clinic, I have seen first-hand the effect of using specific Maca phenotypes for specific populations. As opposed to just “feeling better”, my female patients have experienced actual physiological changes in hormone levels after using the different Femmenessence phenotype combinations. Addressing conditions ranging from amenorrhea, PMS and adrenal fatigue to menopausal symptoms and heart and bone health⁶. It is within this range of benefits, derived from combining individual phenotypes in specific ratios and concentrating the full spectrum of active constituents, that I have found surpasses normal adaptogenic Maca products, which are generally random combinations of the different phenotypes mixed together. Furthermore they are not concentrated, which may be beneficial for general wellbeing and energy but not for

specific clinical uses. Alternatively, I have also used a different phenotype combination in men to reduce prostate size and another combination to counter adrenal fatigue².

Quality Matters

Another factor in relation to Maca is the bioavailability and concentration of the active ingredients required to elicit physiological effects^{4,5,13}. Quality of seed sources and soil content, as well as organic or biodynamic growing strategies and drying methods, all play a part in maximizing the quality of all active constituents. Interestingly, the higher elevation, region-specific quality soil (not necessarily from certain regions of the depleted Junin Plateau), and traditional sun-drying the crop at elevation over a period of three months (not in tobacco dryers in Lima), have all been shown to contribute to the highest quality raw material. In relation to manufacturing, Maca is a tuber and is naturally hard to digest raw. For that reason the native Peruvians traditionally cooked Maca the same way we would a potato. Scientifically this process of improving bioavailability has been addressed through gelatinization, with Meissner (Natural Health International) and La Molina University being the leaders in developing their own processes. Meissner has perfected the process to such a degree that Maca-GO® (Femmenessence) is 99.9% water soluble⁴.

As the natural products industry continues to evolve, it is critical that we combine the best of traditional knowledge, organic and biodynamic-type farming practices with the highest levels of science, manufacturing and quality control. All herbs are not created equal therefore it is important to investigate them in detail, support their use with pharmacology, toxicology and human placebo controlled clinical trials and use efficacious products with therapeutic levels that elicit real health benefits.

Reference:

- 1 Winston D, et al. Adaptogens. *Herbs for Strength, Stamina, and Stress Relief*. Healing Arts Press 2007
- 2 Gonzales GF, et al. Red Maca (*Lepidium meyenii*) reduced prostate size in rats. *Reproductive Biology and Endocrinology* 2005, 3(5) 14
- 3 Skyfield Tropical: Free Online Botanical Encyclopedia Maca (*Lepidium peruvianum*): Botanical Characteristics
- 4 Meissner H.O., Mrozikiewicz P.M., Bobkiewicz-Kozłowska T. et al. Hormone-balancing effect of pre-gelatinised organic Maca (*Lepidium peruvianum* Chacon): (I) Biochemical and pharmacodynamic study on Maca using clinical laboratory model on ovariectomised rats. *IJBS*, 2006; 2: 260
- 5 Meissner H.O., Kapczyński W., Mścisz A. et al. Use of Gelatinised Maca (*Lepidium peruvianum*) in Early--Postmenopausal Women - a Pilot Study. *IJBS*, 2005; 1: 33
- 6 Carter R. Clinical Effects of a Proprietary, Standardized, Concentrated, Organic *Lepidium Peruvianum* Formulation (Maca-GO→) as an Alternative to HRT. 2007
- 7 Meissner HO, et al. Use of Gelatinized Maca (*Lepidium peruvianum*) in Early Postmenopausal Women—A Pilot Study. *IJBS*, 2005; 1(1): 33-45
- 8 Meissner HO, et al. Hormone-Balancing Effect of Pre-Gelatinized Organic Maca (*Lepidium peruvianum* Chacon): (II) Physiological and Symptomatic Responses of Early-postmenopausal Women to Standardized Doses of Maca in Double Blind, Randomized, Placebo-Controlled, Multi-Centre Clinical Study. *IJBS*, 2006; 2(4): 360-374
- 9 Gonzales GF, Cordova A, Gonzales C, et al. *Lepidium meyenii* (Maca) improved semen parameters in adult men. *Asian J Androl* 2001, 3(4): 301
- 10 Obregon LV. "Maca" Planta Medicinal y Nutritiva del Peru. 1 Edition Lima: Instituto de Fitoterapia Americano. 2001, 1-182
- 11 Chacon de Popovici, Gloria. Maca (*Lepidium peruvianum* Chacon), Millenarian Peruvian Food Plant, With Highly Nutritional and Medicinal Properties. 1st Edition. Universidad Nacional Mayor de San Marcos. Lima, Peru. 2001, 1-337
- 12 Chacon G. Pytochemical study on *Lepidium meyenii*. PhD Thesis. Universidad Nacional Mayor de San Marcos. Lima, Peru. 1961, 1-46
- 13 Meissner H.O., Kedzia B., Mrozikiewicz P.M., et al. Short- and Long- Term Physiological responses of Male and Female Rats to Two Dietary Levels of Pre-Gelatinised Maca (*Lepidium peruvianum* Chacon). *IJBS*, 2006; 2: 15