Maca

By Gene Bruno, MS, MHS – Dean of Academics, Huntington College of Health Sciences

Maca (*Lepidium meyenii*) is a Peruvian botanical which has been used successfully to increase energy levels; to improve fertility and as an aphrodisiac; for menopause and menstruation; and for a variety of other historical uses. Now, Maca has begun to move into the lexicon of herbal medicine in North America, and we can now enjoy its benefits as well.

Background

Maca is a hardy perennial plant cultivated high in the Andean Mountain at altitudes from 11,000-14,500 feet. Maca was domesticated about 2000 years ago by the Inca Indians. To the Andean Indians, Maca is a valuable commodity. Because so little else grows in the region, Maca is often traded with communities at lower elevations for other staples like rice, corn, and beans. The dried roots can be stored for up to seven years. Native Peruvians have traditionally utilized Maca since before the time of the Incas for both nutritional and medicinal purposes.[1]

Energy

An adaptogen is a substance which helps the body adapt to a variety of situations. Some adaptogens, like Ginseng, have an ability to promote energy. Maca is such an adaptogen. As a matter of fact, due to its energizing properties this plant is also referred to as Peruvian Ginseng,[2 3 4] although Maca is not in the same family as ginseng. Maca's nutritional value may contribute to its energizing properties. It is rich in sugars, protein, starches, and essential minerals, especially iodine and iron.[5 6 7] The nutritional value of dried Maca root is high, resembling cereal grains such as maize, rice and wheat. It has 59% carbohydrates, 10.2% protein, 8.5% fiber and 2.2% lipids.[8] It is rich in sterols and has a high mineral content as well.[9] In addition to its rich supply of essential nutrients, Maca contains alkaloids, tannins and saponins.[10 11] Alkaloids are also present in minute quantity, but have not yet been quantified.[12] Perhaps of greatest significance are the macamides and macaenes which have been standardized at a level of 0.6% by Pure World Botanical, a raw material supplier of Maca to the dietary supplement industry.[13] It may turn out that the macamides and macaenes are the primary active components in Maca.

In the July / August 1995 issue of his newsletter, *Phil Steinberg's Cat's Claw News*, Phil Steinberg discussed Maca's traditional use to increase energy, stamina and endurance. He then commented on his personal experience with Maca: "March of this year I attended the Natural Products Expo West in Anaheim, California. At the show, I was given a sample bottle of Maca to use while I was there. I was amazed at how I was able to work long hours maintaining a high energy level throughout the show. I took approximately 1,000 mg of Maca three times a day along with my usual amount of Cat's Claw."[14]

Fertility & Aphrodisiac

Maca has been used medicinally for centuries to enhance fertility in humans and animals.[15 16 17 18 19] Soon after the Spanish Conquest in the South America, the Spanish found that their livestock were reproducing poorly in the highlands. The local Indians recommended feeding the animals

Maca and so remarkable were the results that Spanish chroniclers gave in-depth reports.[20] Even Colonial records of some 200 years ago indicate that payments of roughly 9 tons of Maca were demanded from one Andean area alone for Hugo Malaspina, M.D., a cardiologist practicing complementary medicine in Lima, Peru, has been using Maca in his practice for ten years Dr. Malaspina first found out about Maca through a group of sexually active older men who were taking the herb with good results. "One man in this group started taking Maca and found he was able to perform satisfactorily in a sexual relationship with a lady friend. Soon everyone in the group began drinking the powdered Maca as a beverage and enjoying the boost that the root was giving their hormonal functions. I have several of these men as patients, and their improvement prompted me to find out more about Maca and begin recommending it to my other patients."[24]

Chicago physician Gary F. Gordon, former President of the American College for Advancement in Medicine, is also a Maca supporter. "We all hear rumors about various products like Maca," he says. "But using this Peruvian root myself, I personally experienced a significant improvement in erectile tissue response. I call it nature's answer to Viagra. What I see in Maca is a means of normalizing our steroid hormones like testosterone, progesterone, and estrogen. Therefore it has the facility to forestall the hormonal changes of aging. It acts on men to restore them to a healthy functional status in which they experience a more active libido."[25]

A chemical analysis conducted in 1981 showed the presence of biologically active aromatic isothiocyanates, especially p-methoxybenzyl isothiocyanate, which have reputed aphrodisiac properties.[26] Initial analysis of Maca indicate that the effects on fertility are a result of the glucosinolates. [27] [28] [29] Today, dried Maca roots are ground to powder and sold in drug stores in capsules as a medicine and food supplement to increase stamina and fertility.[30] [31]

Menopause & Menstruation

Traditionally Maca has been used menstrual irregularities & female hormonal imbalances including menopause.[32] As Maca has become increasingly popular, its use has spread to this purpose.[21] [22] Its fertility enhancing properties were supported clinically as early as 1961, when researchers discovered it increased the fertility of rats.[23]

medical practices. In the November, 1988 Townsend Letter for Doctors, physicians commented on the therapeutic uses of Maca. Hugo Malaspina, M.D., a cardiologist practicing complementary medicine in Lima, Peru, has been using Maca in his practice for ten years. He commonly recommends Maca to women experiencing premenstrual discomfort or menopausal symptoms. "There are different medicinal plants that work on the ovaries by stimulating them," he says. "With Maca though, we should say that it regulates the ovarian function." Dr. Malaspina further notes that "Maca regulates the organs of internal secretion, such as the pituitary, the adrenal glands, and the pancreas. I have had perhaps two hundred female patients whose perimenopausal and menopausal symptoms are alleviated by taking Maca."[33]

Other Uses Maca is growing in world popularity due to its energizing effects, fertility enhancement and aphrodisiac qualities. Other traditional uses include, promoting mental clarity, and treating chronic fatigue syndrome.[34] [35] It is used as an alternative to anabolic steroids by bodybuilders due to its richness in sterols.[36]

Aguila Calderon, M.D., is the former Dean of the Faculty of Human Medicine at the National University of Federico Villarreal in Lima. He says, "Maca has a lot of easily absorbable calcium, plus magnesium and a fair amount of silica. We are finding it very useful in treating the decalcification of bones in children and adults." In his practice, Dr. Calderon uses Maca for male impotence, erectile dysfunction, menopausal symptoms, and general fatigue.[37]

In Peruvian herbal medicine, Maca is also used as an immunostimulant, for anemia, tuberculosis, menstrual disorders, menopause symptoms, stomach cancer, sterility and other reproductive and sexual disorders as well as to enhance memory.[38]

References

1. Rea, J., 1992. Raices andinas: Maca. in Bermejo, H. and Leon, J.E., eds., *Cultivos marginados, otra perspectiva*

de 1492.
2. Rea, J., 1992.
3. King, Steven, 1986. "Ancient Buried Treasure of the Andes," Garden, November/December.
4. Johns, T., 1981. The anu and the Maca. *Journal of Ethnobiology*, 1:208-212
5. Report of an Ad Hoc Panel of the Advisory Committee on Technical Innovation, Board on Science and Technology for International Development, National Research Council, 1989. *Lost Crops of the Incas: Little Known Plants of the Andes with Promise for Worldwide Cultivation.*
6. Johns, T., 1981.
7. Quiros, C. et al., "Physiological Studies and Determination of Chromosome Number in Maca, *Lepidium Meyenii*." *Economic Botany* 50(2) pp. 216-223. 1996
8. Ibid.
9. Ibid.
10. Report of an Ad Hoc Panel..., 1989.
11. Dini, A., et al, 1994, "Chemical composition of *Lepidium meyenii*," *Food Chemistry* 49: 347-349.
12. Ibid.
13. MacaPure™ specifications information, Pure World Botanicals, South Hackensack, NJ. www.pureworld.com
14. Steinberg, P., 1995. Phil Steinberg's Cat's Claw News, Vol. 1, Issue 2, July/August.
15. King, Steven, 1986.
16. Johns, T., 1981.
17. Quiros, C. et al., 1996.
18. Leon, J. 1964. The "Maca" (*Lepidium Meyenii*) a little known food plant of Peru. *Economic Botany*. 18:122-127
19. "Plant Medicine's Importance Stressed by CSU Professor," *HerbalGram Magazine*, Spring 1989, p. 12.
20. Report of an Ad Hoc Panel of the Advisory Committee on Technical Innovation, Board on Science and Technology for International Development, National Research Council, 1989. *Lost Crops of the Incas: Little Known Plants of the Andes with Promise for Worldwide Cultivation.*
21. Johns, T., 1981.
22. Quiros, C. et al., 1996.
23. Chacon, R.C., 1961. *Estudio fitoquimico de Lepidium meyenii*. Dissertation, Univ., Nac.Mayo de San marcos, Peru.
24. Kilham, C., Doctor's Comments on Maca, www.rain-tree.com/maca.htm
25. Ibid.
26. Johns, T., 1981.
27. Report of an Ad Hoc Panel..., 1989.
28. Johns, T., 1981.
29. Dini, A., et al, 1994.
30. Johns, T., 1981.
31. Gomez, A., "Maca, Es alternativa Nutricional para el ano 2000." *Informe Ojo con su Salud* No. 58 August 15, 1997, Lima Peru
32. Steinberg, P., 1995.
33. Kilham, C.
34. Rea, J., 1992
35. Steinberg, P., 1995.
36. Ibid.
37. Kilham, C.
38. Gomez, A., 1997