PERU NATURALS

INNOVATION • QUALITY • RESPONSIBILITY

THE MACA RESEARCH CENTER

2A CiiTTe – Bi & Va MACA "Don Melitón"

Paving the way toward research, innovation, biodiversity and sustainability

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PROLOGUE

The following presentation briefly summarizes over 20 years of constant work and dedication toward the development of a sustainable agricultural activity on an ancient crop that remained hidden and forgotten for a long time.

Over time, maca gains its reputation in the market, with Peru Naturals standing at the forefront leading and influencing with constant innovation and perseverance invested in this project. Over the last 20 years, many have jumped on the “bandwagon,” following the gold standard we created, which is now recognized globally as the benchmark for a high-quality maca product. This is a standard that only comes with knowledge and science developed over time.

Learn about Peru Naturals’ journey, treasuring our experience and aiming for the perfection, excellence and overall uniqueness that began with ***MacaPro***.

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ABOUT PERU NATURALS

INTRODUCTION

Peru Naturals Corporation is a Peruvian company founded in 2007, dedicated to the design, development, manufacturing, distribution and marketing of unique, high-quality products from the Coast, Amazon and Andes of Peru.

The company brings the best of Peruvian biodiversity to the world through unique superfoods, raw materials, food ingredients and finished products for the food and supplement industry.

Peru Naturals has grown with a strong commitment to quality, sustainability and tradition, creating products crafted with care, rooted in nature and built on doing things right from the beginning.

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OUR PILLARS

INNOVATION

We have introduced new concepts in the industry as well as revolutionary formulas. We do not limit ourselves to established standards, doing what everybody else does; on the contrary, we innovate and develop.

QUALITY

We are emotionally committed to exceptional quality. From farming to the finished product, we follow strict high-quality standards and Good Manufacturing Practices.

RESPONSIBILITY

We work with social responsibility, seeking a sustainable source of income for those in need. We are responsible for the whole chain and, therefore, responsible for every single aspect of our operation.

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ABOUT MACA

WHAT IS MACA

Maca (Lepidium meyenii Walp.) is a root that grows only in the Andean highland zones of Peru, on the Junin Plateau, at altitudes of 4,250 meters above sea level (approx. 14,000 ft.).

Maca is considered a superfood because it has high nutritional value.

Maca is also considered an adaptogenic plant, which is said to help bring the body to a high state of resistance to disease through nutrition.

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THE BEGINNING

IT ALL STARTED AS A “RARE AND DISPERSED” CROP

Wild and dispersed, maca (and related similar species) was found in many regions of Peru, predominantly at high altitudes, generally growing under harsh and poor conditions. Sustainable agricultural activity was not actively performed in any region, only as a precarious and localized activity.

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HISTORICAL REFERENCES

FORGOTTEN IN HISTORY

Maca has been seen in historical references as early as 1549, when Juan Tello de Sotomayor, a Spanish conquistador, described receiving maca roots as a tribute from the Indians for the purpose of improving the fertility of Spanish cattle (https://dbe.rah.es/biografias/8583/juan-tello-de-Sotomayor).

From there, it is rarely heard of again until 1846, when a German botanist, Wilhelm Gerhard Walpers, assigned its botanical name after the first thorough scientific studies on this Andean crop; and so, maca was called “Lepidium meyenii, Walp.” Even with its scientific discovery, maca would not be harvested by humans and would not gain popularity until much later in the future.

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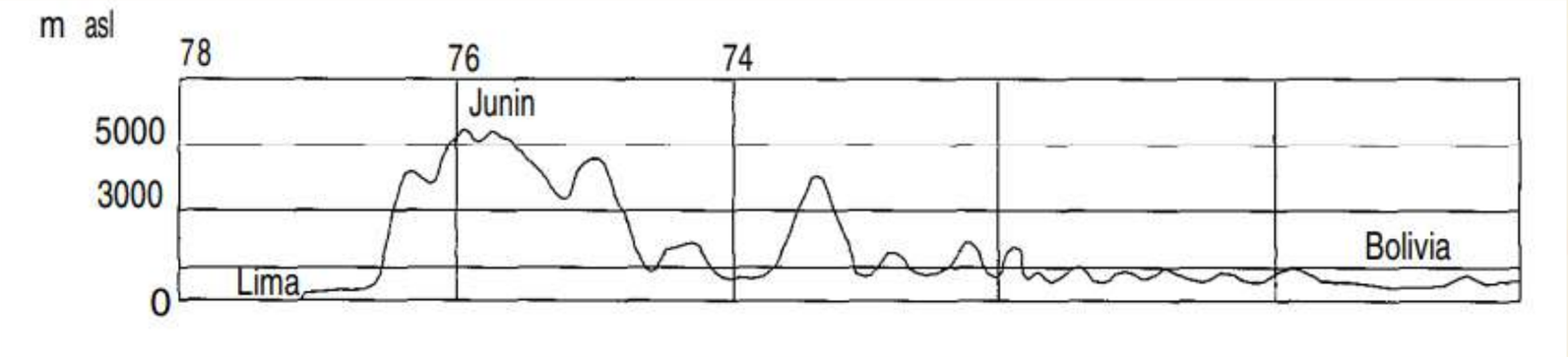
HISTORICAL REFERENCES

MACA ORIGIN

It is believed that maca was domesticated in San Blas, Junin, between 1,300 and 2,000 years ago, but little is known about its origin, except that it was grown at high altitudes (above 4,000 meters above sea level), where no other food was found.



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AGRICULTURAL HISTORY OF MACA

CHRONOLOGY OF EVENTS

The following is a quick overview of the history of how maca became the incredible, sought-after agricultural staple that is now found in some of the world's best food supplements across the globe.

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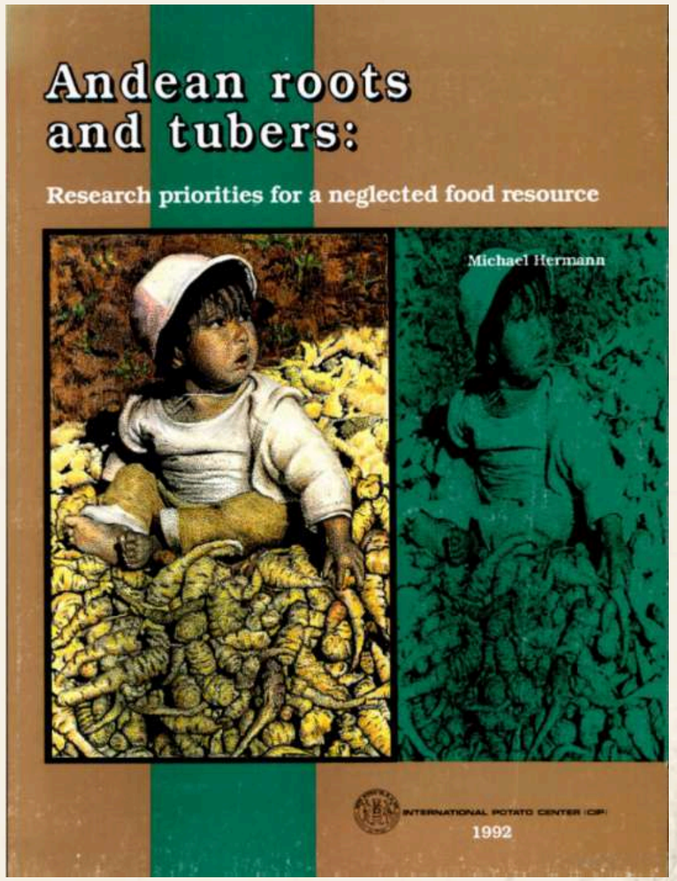
AGRICULTURAL HISTORY OF MACA

1992 – ANDEAN CROPS, INTEREST FOR THE WORLD

After many failed initiatives, due to a lack of interest and resources from the government and private sectors, the International Potato Center (CIP), founded in 1971 and headquartered in Lima, Peru, decided to perform a study on different “original” crops and tubers of the Andean region, maca being one of them.

This was the first approach to learning more about this crop and its potential for humanity.



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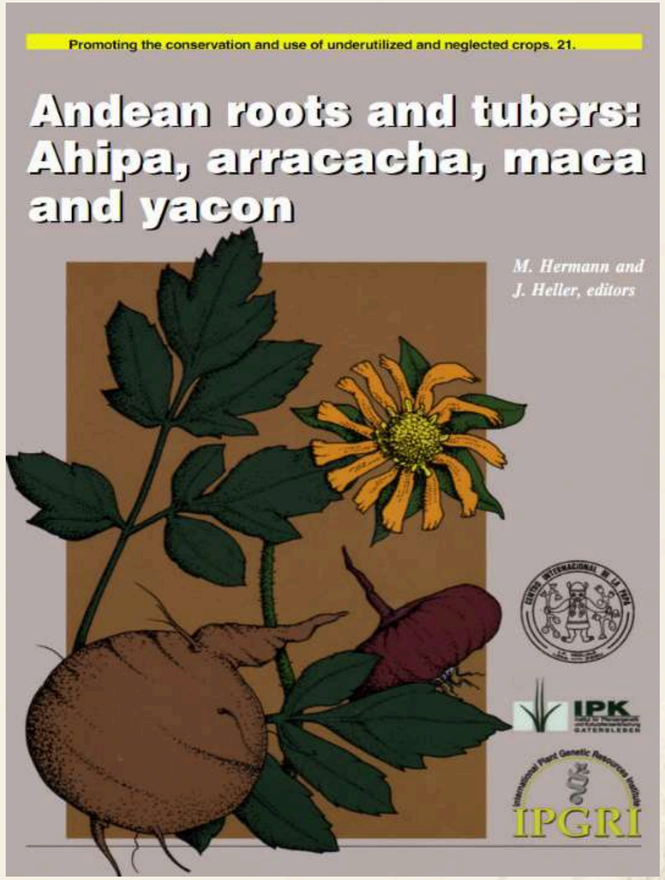
AGRICULTURAL HISTORY OF MACA

1996 – A “MINOR” AGRICULTURAL RESOURCE

At this point in time, maca was considered to be a minor agricultural resource, not sustainable and sourced from the wild in most cases. Despite that mindset, a high potential was seen for its use as a nutritional source for the population of nearby towns in the highlands of Peru. Further investigation on maca was required.

The International Plant Genetic Resources Institute (IPGRI) further studied these “rare” crops, and our company participated, focusing on maca.



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AGRICULTURAL HISTORY OF MACA

THE MISSION

Collect – Samples of wild maca to be collected from different sites for future farming endeavors.

Characterize – Samples to be categorized based on their characteristics, properties, nutrient composition and reproduction.

Select – From the collected sample data, find the best balance between nutrition, properties and sustainability of genetic material.

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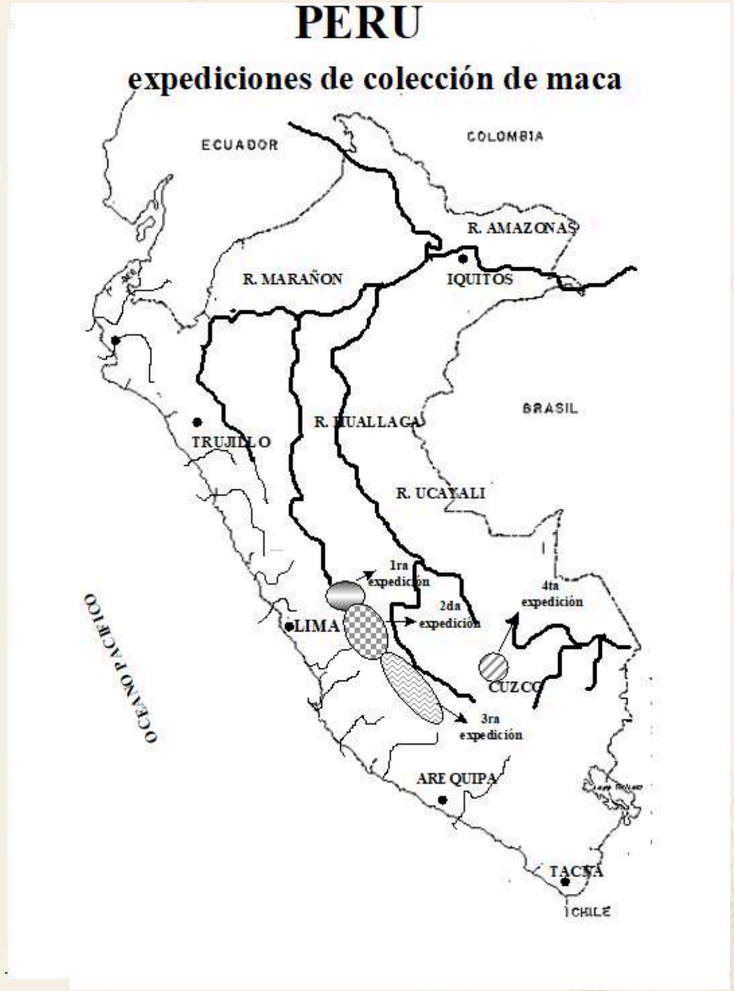
AGRICULTURAL HISTORY OF MACA

SAMPLE COLLECTION

Four expeditions were made to collect samples from the different areas where maca or similar species were found:

- Junin
- Pasco
- Huancavelica
- Ayacucho
- Cusco
- Other areas such as Puno, Apurimac & Huanuco



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AGRICULTURAL HISTORY OF MACA

CONCLUSIONS

After data from the genetic material from different regions was analyzed, it was determined that:

- Junin had the best overall genetic material of maca
- Maca roots could generally be found in different colors, primarily yellow, black, purple and cream, as well as color blends
- Every color has its own genetic and nutritional characteristics
- There is a big difference between fresh maca roots and dried maca roots
- Dried maca roots offer sustainability to the region

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AGRICULTURAL HISTORY OF MACA

1999 – SETTING UP THE AGRICULTURAL STANDARDS

After many studies were done, and details regarding the agricultural aspects of growing maca were collected, tested and experienced, our company decided to embark on the development of a sustainable agricultural activity for the maca root in the Junin region.

A few hectares of land were sown with great expectations for the future. We started a new era!

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AGRICULTURAL HISTORY OF MACA

THE JUNIN PLATEAU, THE PERFECT SITE FOR GROWING MACA

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AGRICULTURAL HISTORY OF MACA

FRESH MACA ROOT COLOR VARIETIES

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CREATING A NEW GLOBAL STANDARD

2003 – A BRAND BORN FROM PASSION

With our current understanding of maca roots, we began to see great potential for maca roots to be incorporated into the industry. While maca was beginning to make its way to some store shelves (from Peru and Bolivia) in the form of simple and basic products, we knew we could do better by differentiating these derivative products using the knowledge acquired during our research. A new brand was launched in the market:

MacaPro®

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CREATING A NEW GLOBAL STANDARD

2003 – SETTING A NEW BENCHMARK FOR MACA

At this time, all indicators pointed to sourcing maca roots from Junin, but root selection itself had yet to be introduced into standard market production of maca products.

This is where we stepped in and began experimenting with blends and unique processes for these selected maca roots, primarily using ancient knowledge, traditional techniques and rudimentary equipment.

It is with this mindset that we embarked on the development of a line of products that would eventually revolutionize the standard for maca products across the globe.

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CREATING A NEW GLOBAL STANDARD

2004 – ANCIENT KNOWLEDGE MEETS SCIENCE

Our research and collection of information indicated that we should concentrate our efforts on prioritizing the use of darker maca roots within our production scheme, blends and formulations, due to their superior nutritional and biochemical content.

We decided to focus primarily on black maca roots, using purple and yellow roots to supplement their nutritional content and health benefits.

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CREATING A NEW GLOBAL STANDARD

AND THE RAW GELATINIZED MACA POWDER 6:1 WAS CREATED!

Our own proprietary blend of 80% black, 15% purple and 5% yellow maca roots and a revolutionary cold gelatinization process — without the use of high heat (as with the extrusion method) — got the attention of the industry.

The terms “Raw Gelatinized” and “6:1” were first introduced to the world in a product full of nutritional benefits and appreciable results.

Our MacaPro® Raw Gelatinized Maca Powder 6:1 established the new golden standard for maca for years to come.

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CREATING A NEW GLOBAL STANDARD

INNOVATIVE BY FAR!
OUR XP LIQUID MACA EXTRACTS

With the incredible consumer feedback for the use of our MacaPro® Raw Gelatinized Maca Powder 6:1, and with a better understanding of the nutritional benefits of maca roots, we managed to incorporate valuable ancient knowledge into a completely new and innovative line of liquid maca extracts:

- MacaPro® XP Gold 10:1 – 80% black, 15% purple and 5% yellow
- MacaPro® XP Platinum 18:1 – 100% black maca
- MacaPro® XP Professional 20:1 – 100% purple maca
- MacaPro® XP Limitless 25:1 – 50% black & 50% purple maca

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CREATING A NEW GLOBAL STANDARD

ADOPTING GLOBAL QUALITY STANDARDS

USDA ORGANIC

Kölner Liste

NON GMO

GLUTEN FREE

RAW

VEGAN

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THE PROBLEM

A BIG MISUNDERSTANDING – “MACA GROWS EVERYWHERE”

Due to the growing demand for maca, many companies sought ways to produce higher quantities without truly understanding how to grow, dry and select maca in its truest form.

Not only is maca originally from Peru, but it is Junin that holds the correct environment to fully cultivate it!

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A GENETIC MISUNDERSTANDING

2014 – ALTERNATIVE SOURCES

Illegally exported seeds were sent abroad and attempted to be grown across the world. Nevertheless, these attempts were unsuccessful due to the lack of growing conditions similar to Junin (altitude, soil, weather, etc.). Maca never developed properly, and farmers had to use multiple options to achieve results, even using plant hormones.

As an extreme method, genetically modified seeds were attempted to be used, which led to what was dubbed the “Franken-Maca.”

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A GENETIC MISUNDERSTANDING

2014 – GROWING ATTEMPTS AROUND PERU

Since the growing attempts using natural and genetically modified seeds in other parts of the world did not come to fruition, attempts were then made to meet global demand by growing maca in other regions of Peru.

As the research expeditions done back in 1996 showed, these growing attempts led to subpar cultivations that would not meet the nutritional expectations and benefits of maca.

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A GENETIC MISUNDERSTANDING

2014 – CONFUSING THE CONSUMERS

This genetic misunderstanding of what can be considered “maca” led to a flood of products that utilize raw materials that cannot truly be considered maca, thus confusing consumers worldwide and damaging the image of the product itself.

Once the difference between the varieties of “maca” and the true varieties of maca from Junin was understood, a higher and uncontrollable demand for genetic material from Junin from across the world would lead to a loss of sustainability for farmers.

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THE MACA RESEARCH CENTER

2014 – BUILDING THE FOUNDATIONS FOR A LONG-TERM SOLUTION

Due to the lack of government aid to preserve the originality and sustainability of maca, and the complete misunderstanding of all aspects related to properly growing the right genetic material of maca in its own habitat, we decided that it was time to create a privately run center for further investigation, research and sustainability of the maca root.

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THE MACA RESEARCH CENTER

2014 – And So We Did, Right at the Heart of Junin!

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2014 – We Built the Foundations for a Long-Term Solution

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THE MACA RESEARCH CENTER

2017 – GRAND OPENING OF THE CIITTE MACA RESEARCH CENTER

And with countless hours of work and immeasurable efforts, we finally opened the doors of the first and only 100% privately owned Maca Research Center in Junin, Peru.

The center is one-of-a-kind and is ready to begin its mission to further research on maca, its habitat and ecosystem.

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THE MACA RESEARCH CENTER

2017 – Grand Opening of the CiiTTe Maca Research Center

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2017 – Grand Opening of the CiiTTe Maca Research Center

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THE MACA RESEARCH CENTER

FACILITIES

The Maca Research Center is fully equipped with the following amenities:

- Auditorium
- Classroom
- Board Room
- Certification Facility
- Fully Equipped, Expandable In-House Laboratory
- Accommodation Facilities for Researchers, Students, etc.
- Warehouse for up to 200 tons of maca

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THE MACA RESEARCH CENTER

AMENITIES

- Meeting Rooms & Workspace
- Controlled Field Experimentation Area
- Expanded Field for Controlled and Uncontrolled Plant Experimentation
- Seed and Plant Growing Facility
- Genetic Germplasm Bank
- Seed Bank Storage

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THE MACA RESEARCH CENTER

ACCOMPLISHMENTS – GERMPLASM COLLECTION BANK

Collection of select genetic material (roots and seeds) categorized by root color, nutritional content and sustainability.

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ACCOMPLISHMENTS – SEED BANK

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ACCOMPLISHMENTS – PHENOTYPE CHARACTERIZATION

Precision in phenotype characteristics (maca root growth and color selection) to further meet production for our market demands.

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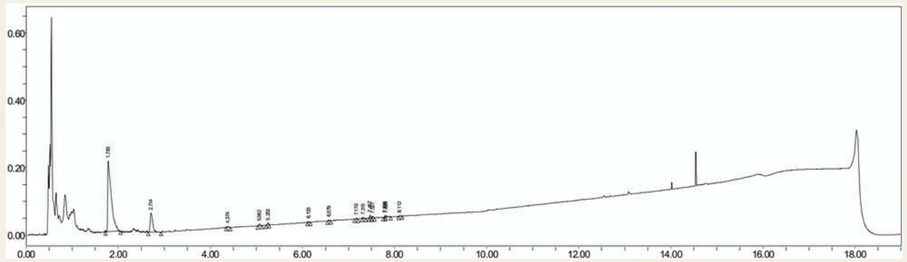
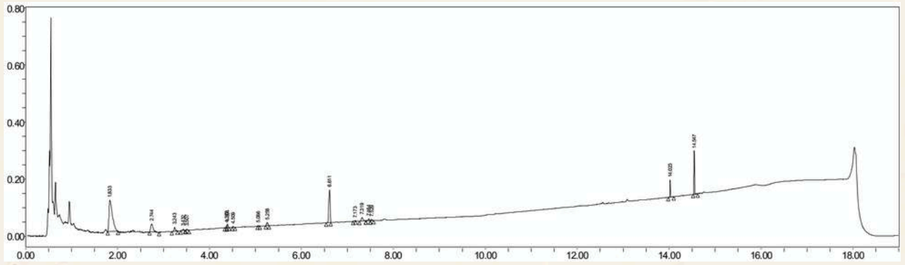
ACCOMPLISHMENTS – IDENTIFYING GENETIC MARKERS

Genetic Markers – Dried Maca Roots

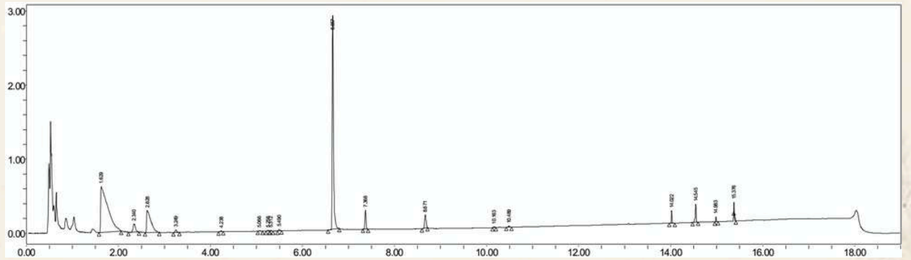


Genetic Markers – MacaPro® Raw Gelatinized Maca Powder 6:1



Exact Match with Plant Material

Genetic Markers – Generic Chinese Maca Powder



Adulterated or Inferior Quality

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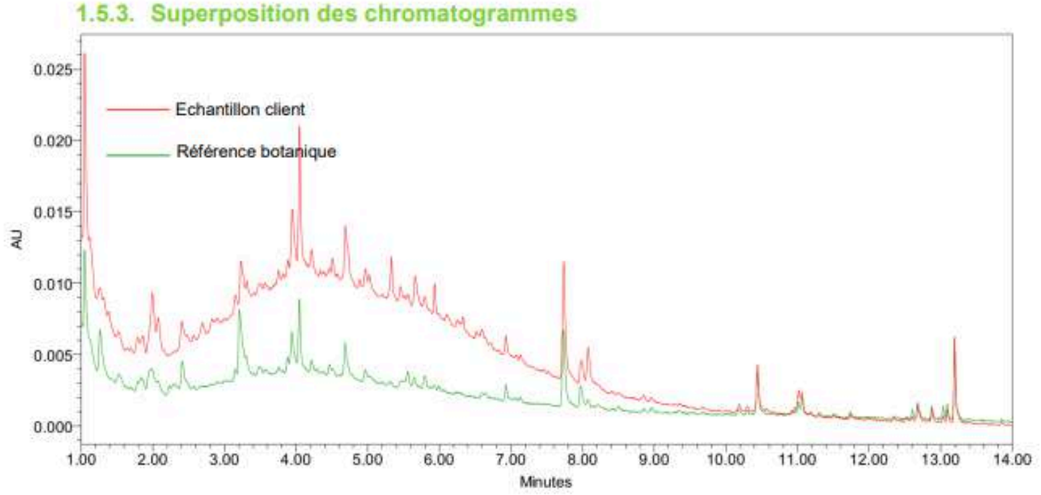
ACCOMPLISHMENTS – STRONGER GENOTYPE EXPRESSION

Improvement in phytochemical information, showing a greater production of metabolites (greater genetic expression) compared to the original genetic markers found through chromatography tests in certified laboratories abroad.



2. CONCLUSION GENERALE

L'analyse HPLC permet d'identifier l'échantillon Client comme étant un échantillon de *Lepidium meyenii* Walp (racine)

ECHANTILLON CLIENT	N° LOT INTERNE	N° LOT	IDENTIFICATION PHYTOCHIMIQUE
MacaPro SX	CS15352	2111	Conforme

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ACCOMPLISHMENTS – STRONGER GENOTYPE EXPRESSION

This allows us to continue pursuing the agricultural growth of the best-quality raw materials in order to continue developing incredible products for our customers worldwide. There is more to come!

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ACCOMPLISHMENTS – SUSTAINABILITY

With a better understanding of maca and the possession of seeds that naturally grow the desired root varieties with a higher success rate, we help farmers achieve a higher level of efficiency and better support themselves.

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THE MACA RESEARCH CENTER

ACCOMPLISHMENTS – ECOSYSTEM PRESERVATION

Preserving the natural ecosystem of Junin — a true world treasure of rich soil and unique habitat and weather conditions — by maintaining traditional farming methods while aiding efficiency to avoid the use of polluting equipment.

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THE MACA RESEARCH CENTER

2022 AND ONWARD – FUTURE GOALS

We have made tremendous advancements with maca, but we remain committed and look forward to further developments in areas such as:

- Soil and Agricultural Site Research
- Further Research on Genomics and Bioinformatics
- Development of More Efficient Agricultural Techniques
- Development of Training Courses for Farmers and Researchers
- And much more!

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THE MACA RESEARCH CENTER

FINAL WORDS

We hope you got a better grasp of the hard work we and our partners have put in over all these years toward bringing the best maca products to the world.

We thank you for your time and hope you look forward to our future developments.

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