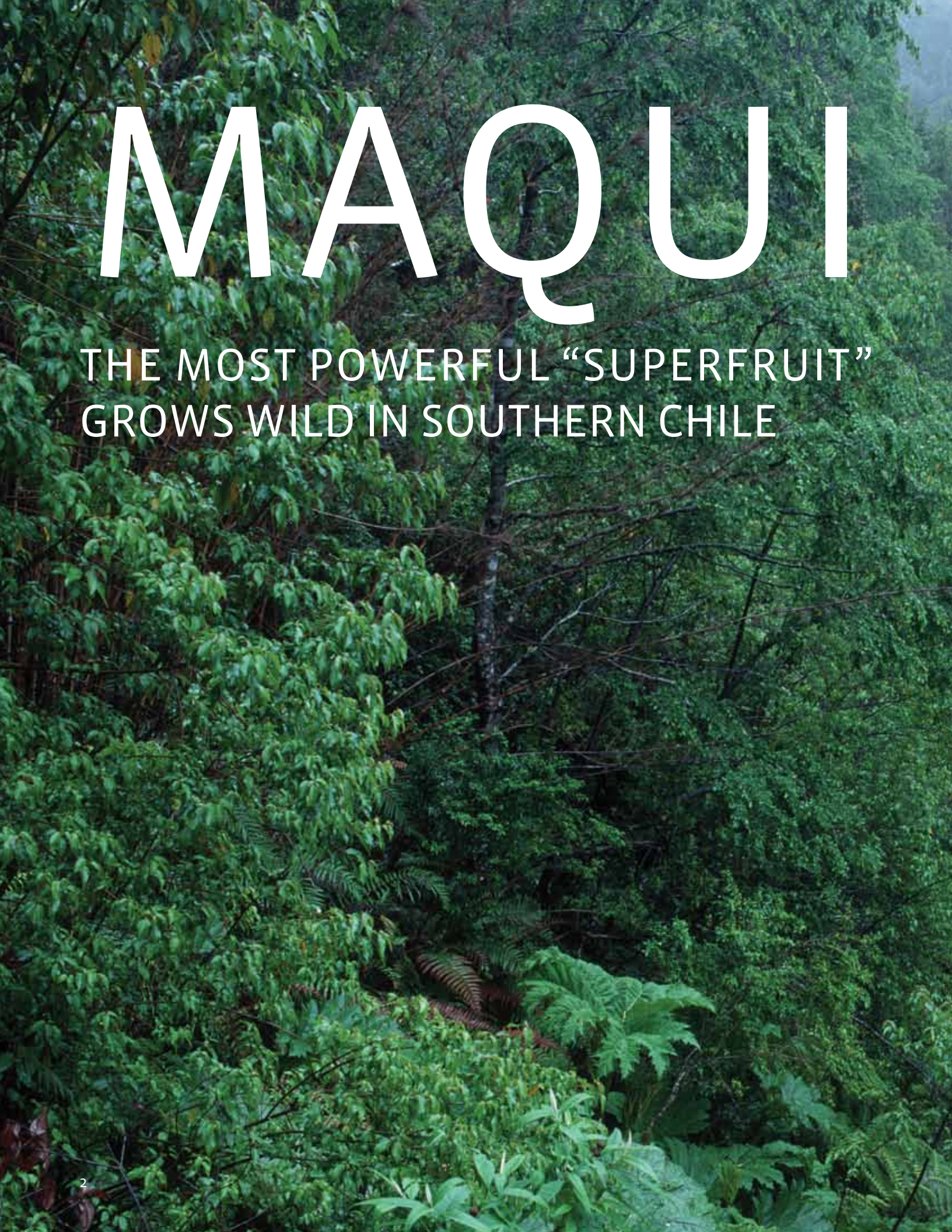
MAQUI SELECT®

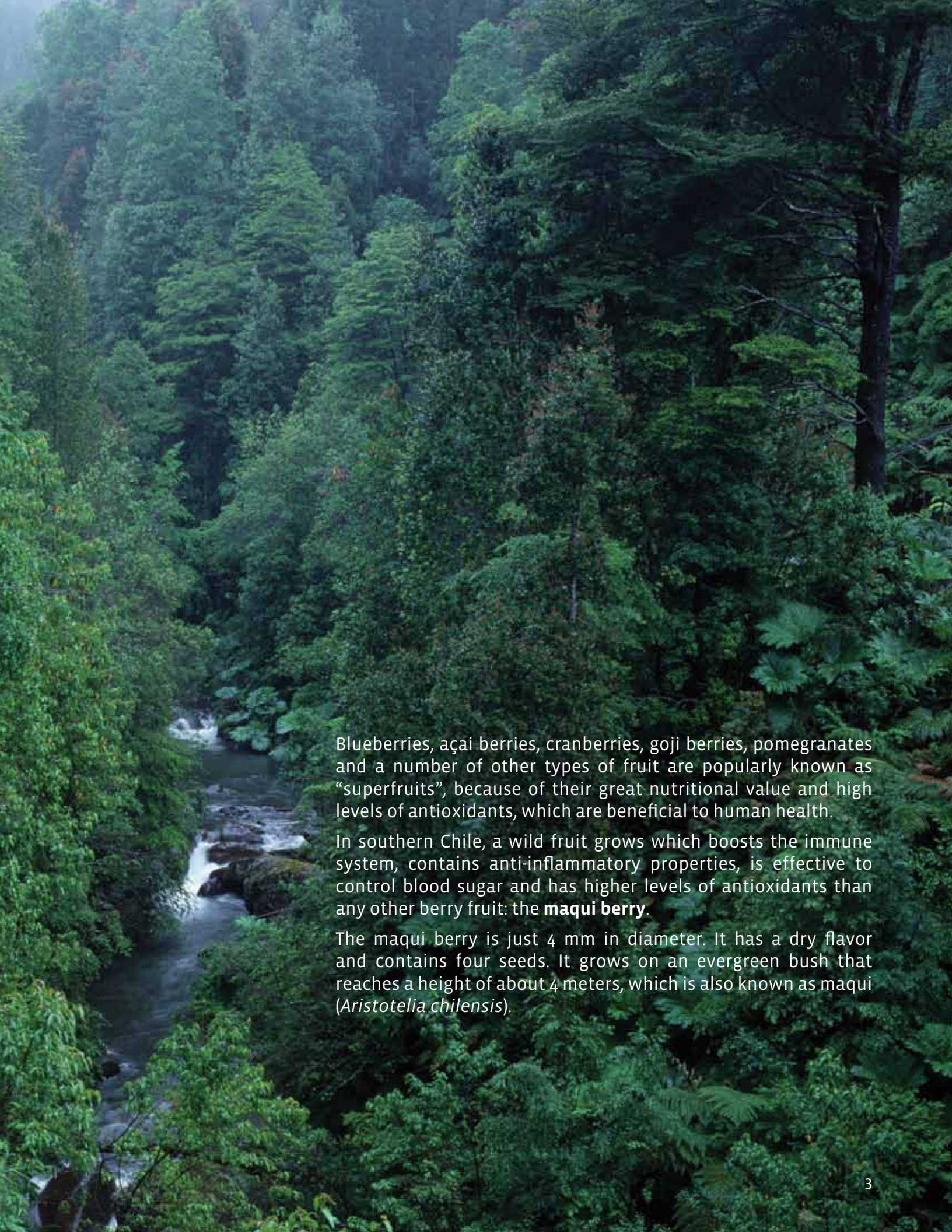
THE ESSENCE OF THE MOST POWERFUL SUPERFRUIT IS NOW AVAILABLE

MAQUI NEW LIFE



MAQUI

THE MOST POWERFUL "SUPERFRUIT" GROWS WILD IN SOUTHERN CHILE



Blueberries, açai berries, cranberries, goji berries, pomegranates and a number of other types of fruit are popularly known as “superfruits”, because of their great nutritional value and high levels of antioxidants, which are beneficial to human health.

In southern Chile, a wild fruit grows which boosts the immune system, contains anti-inflammatory properties, is effective to control blood sugar and has higher levels of antioxidants than any other berry fruit: the **maqui berry**.

The maqui berry is just 4 mm in diameter. It has a dry flavor and contains four seeds. It grows on an evergreen bush that reaches a height of about 4 meters, which is also known as maqui (*Aristotelia chilensis*).

A HIGH ANTIOXIDANT CAPACITY

The Maqui fresh fruit has a much higher antioxidant level than all other superfruits, such as bilberries, black raspberries, goji berries and blackcurrants.

The oxidation processes in our cells produce free radicals, which are atoms or molecules with an unpaired electron. These free radicals are highly reactive with other substances and therefore damaging to the human organism.

Antioxidants are molecules which can neutralize free radicals, stopping the stress caused by oxidants and slowing down the cell aging process.

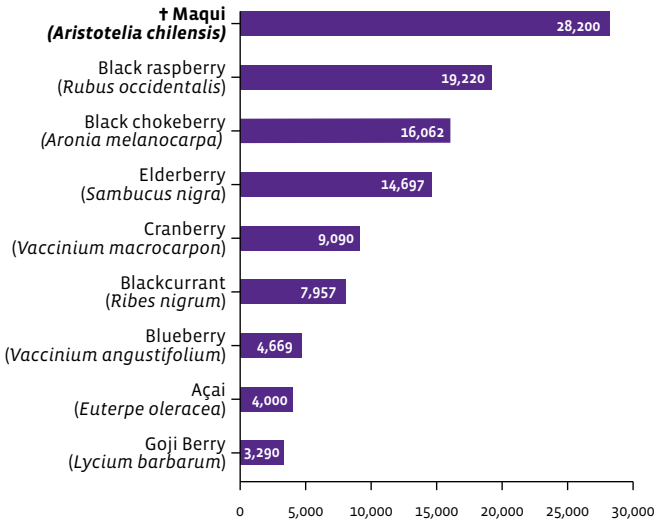
The ORAC (Oxygen Radical Absorbance Capacity) index measures the antioxidant activity and free radical neutralization properties in food. Also, a high ORAC value for a food is often associated with protection against various chronic inflammatory diseases or metabolic disorders.

Maqui fresh fruit has the highest ORAC score among berries known so far.

Nutritionists recommend consuming at least 3,000 ORAC units each day. However, most people consume only about 1,200. As a supplement to your diet, **MAQUI SELECT®** can help make up for this deficit, providing health benefits.

ORAC value of selected "superfruits" (µmol TE / 100 g of fruit)

Source: USDA Database for the Oxygen Radical Absorbance Capacity (ORAC), May 2010



† Source: Brunswick Laboratories, Norton, MA, USA

MAQUI SELECT®

AN INNOVATIVE EXTRACT WITH EXCEPTIONAL ANTI-AGING QUALITIES

FROM ANCIENT KNOWLEDGE TO SCIENTIFIC PROOF

Maqui's therapeutic qualities have been known for centuries to the Mapuches, indigenous people who have traditionally lived in the southern part of Chile. Besides eating the fruit, they also consumed fresh and fermented maqui juice. They used it to treat stomach ailments, sore throats or wounds, and also as an analgesic and fever reducer. They also used it as a natural colorant.

The research team at Universidad Austral de Chile, one of the partners developing **MAQUI SELECT®**, is conducting ongoing research that started three years ago. Their findings have proven the exceptional properties of maqui, revealing their chemical origin and identifying other properties which were not known to the Mapuches.

MAQUI SELECT® extract is obtained from the wild maqui fruit, gathered in southern Chile. It has a standardized content of anthocyanins (35% NLT) and an astonishing level of delphinidins (25% NLT), the highest among all food ingredients which are currently available.

Anthocyanins in MAQUI SELECT® extract

The **MAQUI SELECT®** extract contains 8 different types of anthocyanin:

- Delpinidin-3-O-samb 5-O-glucoside
- Delphinidin 3,5-O-diglucoside
- Cyanidin-3-O-samb-5-O-glucoside
- Cyanidin-3,5-O-diglucoside
- Delphinidin-3-O-sambubloside
- Delphinidin-3-O-glucoside
- Cyanidin-3-O-sambubloside
- Cyanidin-3-O-glucoside
- **TOTAL ANTHOCYANINS: 35 % NLT**
- **TOTAL DELPHINIDINS: 25% NLT**

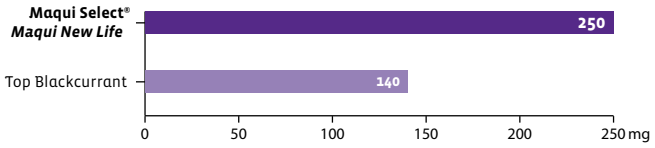
Example of Pilot production at Indena

Source: Pilot Batch, Indena SpA, Italy

Anthocyanin	Content %
Delphinidin-3-O-samb 5-O-glucoside	6.38
Delphinidin 3,5-O-diglucoside	13.64
Cyanidin-3-O-samb-5-O-glucoside	3.36
Cyanidin-3,5-O-diglucoside	1.58
Delphinidn-3-O-sambubloside	1.67
Delphinidin-3-O-glucoside	6.95
Cyanidin-3-O-sambubloside	0.79
Cyanidin-3-O-glucoside	1.05
TOTAL DELPHINIDINS	**28.64**
TOTAL ANTHOCYANINS	**35.40**

Delphinidin content in selected extracts (mg of delphinidins/ g extract)

Source: Technical Specification of each manufacturer



MAQUI SELECT® contains potent antioxidants, which act against the five most important free radicals found in the human body: peroxyls, hydroxyls, peroxynitrites, superoxide anions and other oxygen-based free radicals.

Its exceptional properties make **MAQUI SELECT®** is one of the best anti-aging products:

- **boosts the immune system**
- **helps to get a healthy anti inflammatory response**
- **helps control blood sugar and cholesterol levels**
- **helps prevent oxidation and related damage**

Anti-oxidant capacity of MAQUI SELECT® against 5 free radicals

Source: Brunswick Laboratories, 2010

Radical	ORAC umol TE / g
Peroxyls	4,611
Hydroxyls	14,372
Peroxynitrites	835
Superoxide anions	5,699
Oxygen-based free radicals	1,245
TOTAL ORAC FN	**26,762**

MAQUI SELECT®

PROMOTES A HEALTHY IMMUNE RESPONSE

MAQUI SELECT® extract has the highest delphinidin content among similar products on the market. Our research led to the important discovery that the delphinidins in MAQUI SELECT® have an excellent ability to stimulate the immune system.

Delphinidins are a type of anthocyanin, a vegetable pigment responsible for the blue and red colors of certain kinds of grapes, blueberries and pomegranates.

In general, delphinidins activate the production of nitric oxide, stimulating vascular relaxation and reducing blood pressure.

Furthermore, research carried out by Maqui New Life has demonstrated that delphinidins elevate the liberation of intracellular calcium in jurkat cells, which may activate the production of cytokines such as IL-2 and IFN-gamma in this cellular line and in human T lymphocytes.

Cytokine production in T lymphocytes is activated by the NFAT transcription factor. On the other hand, the production of IL-2, induced by delphinidins, is significantly reduced by cyclosporin A (CsA). Therefore, it seems that delphinidins have the ability to activate the NFAT transcription factor.

All of these effects result in strengthening the cells of the immune system.

PROMOTES HEALTHY INFLAMMATORY RESPONSE

MAQUI SELECT® can help to control inflammatory processes, it is useful as a complement in the treatment of diseases characterized by such processes.

Chronic inflammatory processes cause many human health problems related to the destruction of tissue and tumor formation. **MAQUI SELECT®** can help prevent these problems.

The potential effect of **MAQUI SELECT®** as an anti-inflammatory was assessed on animal models with plantar inflammation induced by carrageenan showing a reduction in inflammation similar to the effect of the prescription drug diclofenac.

MAQUI SELECT® gets this biological effect from delphinidins, which have shown anti-inflammatory effects in many experimental models.

Preliminary studies have shown that **MAQUI SELECT®**, due to its high concentration of delphinidins, can inhibit the NF-kB transcription factor in neutrophils and activate the PPAR gamma receptor. This receptor, in addition to carrying out anti-inflammatory activities, is associated with the control of various biological processes.

In general, anthocyanins possess a PPAR gamma effect. Our research on delphinidins, (highly concentrated in the maqui and **MAQUI SELECT®**), has shown that they are unique for their type since they show a strong immunostimulant effect. We are elucidating the molecular mechanism of action and the specific pharmacological target of **MAQUI SELECT®**.

The delphinidins in **MAQUI SELECT®** have also shown a significant antiproliferative effect.

HELPS MAINTAIN GLUCOSE BALANCE

MAQUI SELECT® extract stabilizes blood glucose levels, helping to control metabolic balance.

As mentioned previously, the delphinidins of **MAQUI SELECT®** have powerful anti-inflammatory effects, due to their activation of the PPAR gamma receptor. This activation mechanism is strongly correlated with the control of Type 2 diabetes, as it enhances insulin sensitivity.

Also, since hyperglycemic episodes in diabetic patients are closely linked to nitro-oxidative or oxidative stress –the most important factor in the onset and progress of vascular and kidney complications from Type 1 and Type 2 diabetes– the potent effect of **MAQUI SELECT®** may help prevent the pro-oxidant effects of hyperglycemia.

In conclusion, studies show that the delphinidins of **MAQUI SELECT®** significantly increase the expression of adipocytokine genes, PPAR gamma and specific adipocyte genes in humans and can be an excellent complement in regulating the adipocyte function, reducing body weight and controlling metabolic problems related to overweight and obesity.

MAQUI SELECT®

A STANDARDIZED EXTRACT, MANUFACTURED BY THE GLOBAL LEADER IN BOTANICAL DERIVATIVES

INDENA AND MAQUI NEW LIFE

The company offering this innovative product is Maqui New Life, a industrial cooperation between Indena Group, and CTI Salud and Sur Extremo, both Chilean companies.

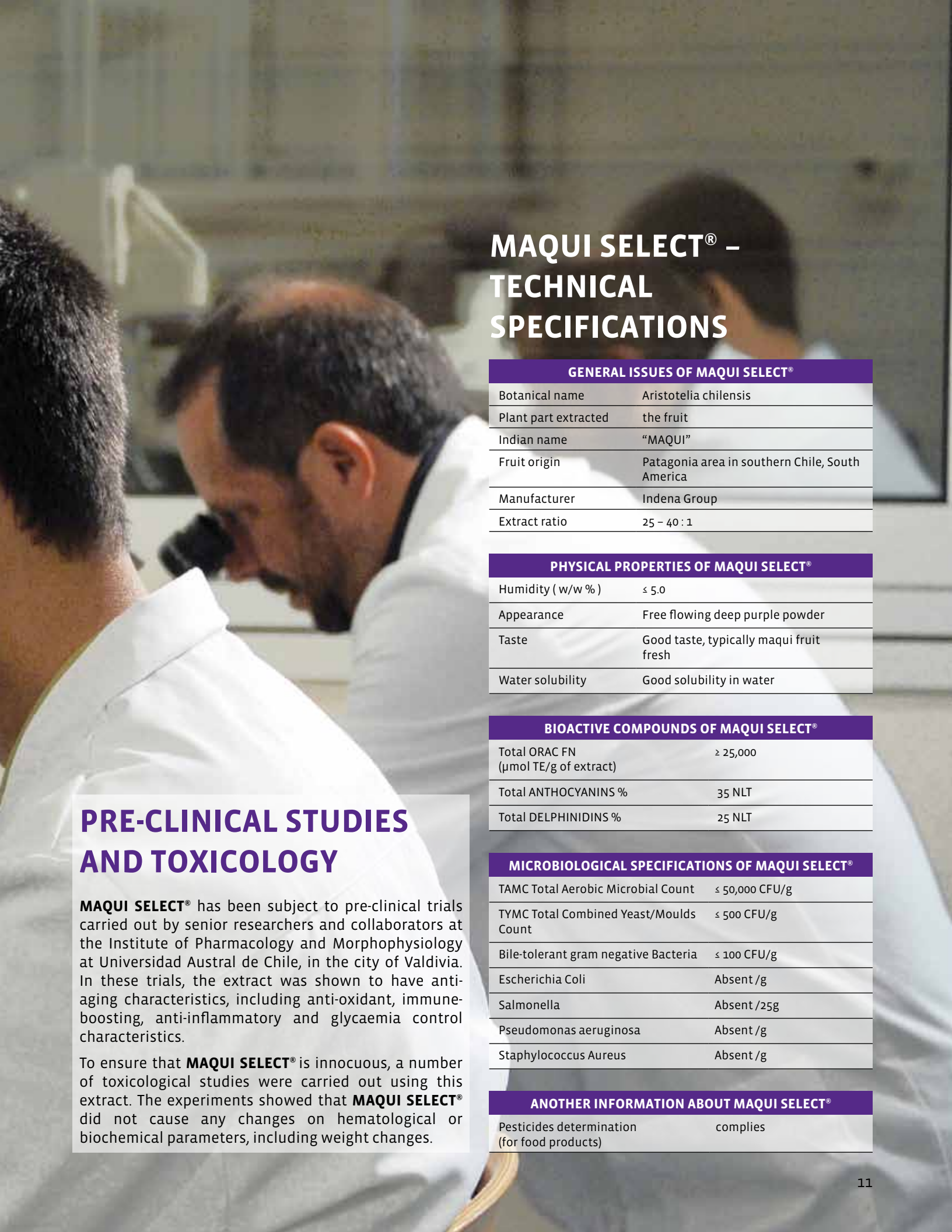
Indena SpA is a global leader in the identification, development and production of active plant-derived substances for use in the pharmaceutical, cosmetics and health food industries.

INDENA GUARANTEED QUALITY

Unlike many similar products, **MAQUI SELECT®** is a standardized extract.

To achieve this level of standardization, Indena invested in research to develop a new manufacturing method which is appropriate for processing Maqui berries.

All of Indena's production processes follow Good Manufacturing Practices (GMP). **MAQUI SELECT®** is manufactured under GMP meeting the standards of FDA.



MAQUI SELECT® – TECHNICAL SPECIFICATIONS

GENERAL ISSUES OF MAQUI SELECT®	
Botanical name	Aristotelia chilensis
Plant part extracted	the fruit
Indian name	"MAQUI"
Fruit origin	Patagonia area in southern Chile, South America
Manufacturer	Indena Group
Extract ratio	25 – 40 : 1

PHYSICAL PROPERTIES OF MAQUI SELECT®	
Humidity (w/w %)	≤ 5.0
Appearance	Free flowing deep purple powder
Taste	Good taste, typically maqui fruit fresh
Water solubility	Good solubility in water

BIOACTIVE COMPOUNDS OF MAQUI SELECT®	
Total ORAC FN (µmol TE/g of extract)	≥ 25,000
Total ANTHOCYANINS %	35 NLT
Total DELPHINIDINS %	25 NLT

MICROBIOLOGICAL SPECIFICATIONS OF MAQUI SELECT®	
TAMC Total Aerobic Microbial Count	≤ 50,000 CFU/g
TYMC Total Combined Yeast/Moulds Count	≤ 500 CFU/g
Bile-tolerant gram negative Bacteria	≤ 100 CFU/g
Escherichia Coli	Absent /g
Salmonella	Absent /25g
Pseudomonas aeruginosa	Absent /g
Staphylococcus Aureus	Absent /g

ANOTHER INFORMATION ABOUT MAQUI SELECT®	
Pesticides determination (for food products)	complies

PRE-CLINICAL STUDIES AND TOXICOLOGY

MAQUI SELECT® has been subject to pre-clinical trials carried out by senior researchers and collaborators at the Institute of Pharmacology and Morphophysiology at Universidad Austral de Chile, in the city of Valdivia. In these trials, the extract was shown to have anti-aging characteristics, including anti-oxidant, immune-boosting, anti-inflammatory and glycaemia control characteristics.

To ensure that **MAQUI SELECT®** is innocuous, a number of toxicological studies were carried out using this extract. The experiments showed that **MAQUI SELECT®** did not cause any changes on hematological or biochemical parameters, including weight changes.

RELATED SCIENTIFIC LITERATURE

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