



# MAQUI: THE EXTREME ORAC SUPERFRUIT

MAQUI

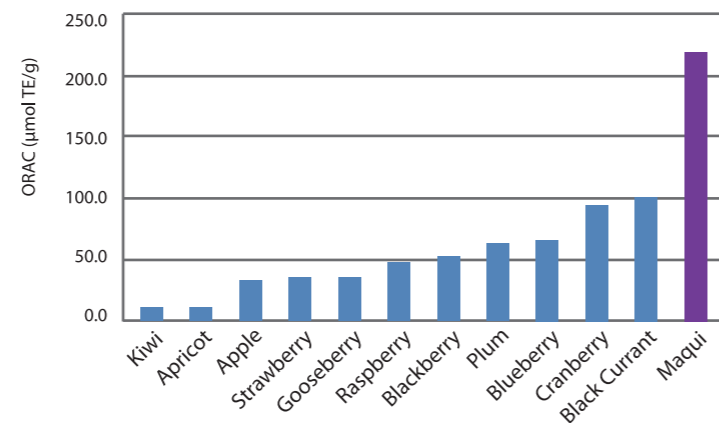
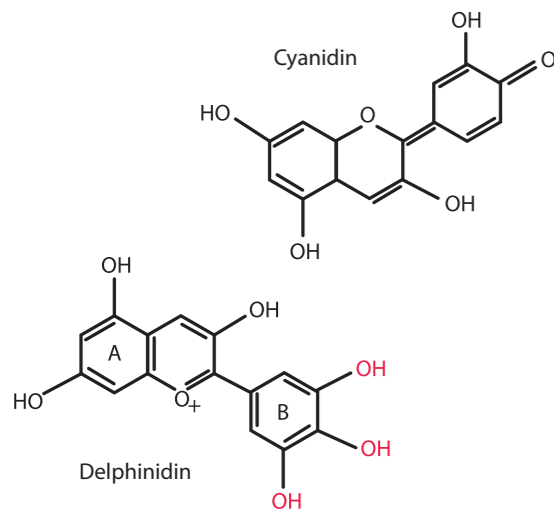


## Maquiberry juice concentrate and Extracts: an Innovative Approach to Nutritherapy

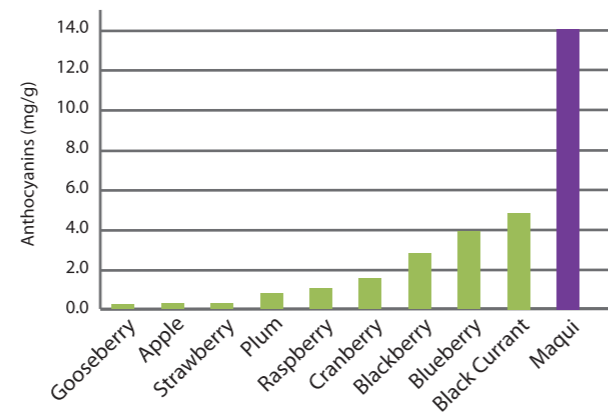
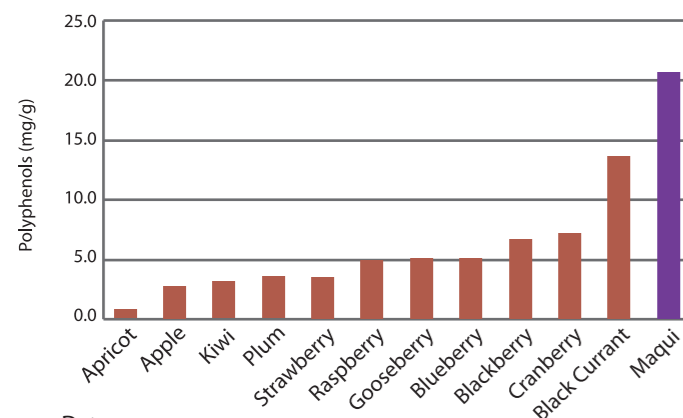
Maqui is an endemic species of the Chilean Patagonia, home of native Mapuche culture. These lands are virtually free from environmental contamination

Berries are collected from wild growing plants in a sustainable manner, paying special attention to habitat, plant health and proliferation, in order to avoid overexploiting of this natural resource.

Patagonol is extracted physically without solvents. Available as liquid concentrate or lyophilized powder.



Data:  
 • USDA Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007  
 • Bayas del Sur extensive set of ORAC analysis of Maqui fruit collected from diverse locations of Chile.



Data:  
 • USDA - Oxygen Radical Absorbance Capacity (ORAC) of Selected Foods – 2007  
 • Concentrations of Anthocyanins in Common Foods in the United States and Estimation of Normal Consumption (J. Agric. Food Chem. 2006, 54, 4069-4075).  
 • Bayas del Sur - extensive set of Anthocyanins and Polyphenols analysis of Maqui fruit.

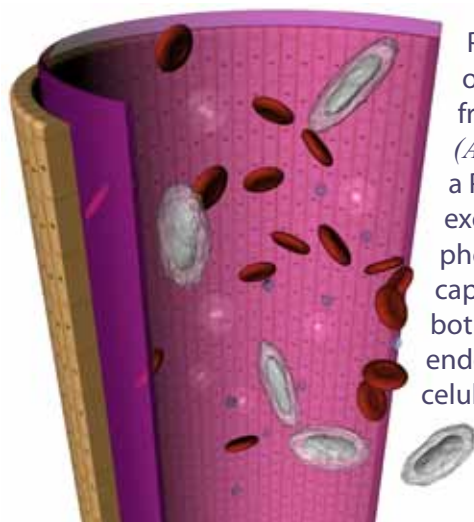
## Product Description

Patagonol™ - the original Maquiberry Extract is available in five varieties, each specifically formulated to its intended use as a health Ingredient, component in dietary supplements or as a powerful natural food colorant.

Patagonol™ - Liquid Extracts and lyophilized powders are manufactured from wild Maqui Berries (*Aristotelia chilensis*) which have been hand-collected in the Chilean Patagonia. Due to its high anthocyanin content and antioxidant effect, Maqui Berry is considered a very powerful "Superfruit"!

	Patagonol™-LE 17 Brix Clear	Patagonol™-LE 65 Brix	Patagonol™-LE 50 Brix Cloudy	Patagonol™-SFD Seedless, Freeze-dried	Patagonol™-FD With Seeds, Freeze-dried
Brix	17,0 +/- 0,5	65,0 +/- 0,5	50,0 +/- 0,5	—	—
Humidity	—	—	—	1,50 - 5,00 %	3,00 - 5,00 %
pH	3,50 - 4,00	3,50 - 4,50	3,50 - 4,00	—	—
Density	—	1,319 g/cm <sup>3</sup>	—	0,630 g/ml	0,600 g/ml
Color (520 nm)	1,068	—	1,148	—	—
Color Units	—	1418	—	—	—
ORAC <sub>hydro</sub> *	110-230 µmol TE/ml (Lab. Nutricional Molecular, PUC)	600-850 µmol TE/ml (Brunswick Lab., U.S.A.)	400-450 µmol TE/ml (Brunswick Lab., U.S.A.)	850-950 µmol TE/g (Brunswick Lab., U.S.A.)	350-500 µmol TE/g (Lab. Nutricional Molecular, PUC)
Anthocyanins	4,0 - 8,7 mg/ml	18 - 24 mg/ml	18,4 - 19,4 mg/ml	30 - 35 mg/g	10 - 30 mg/g
Anthocyanin Composition	Delphinidin-3-sambubioside-5-glucoside Delphinidin-3,5-diglucoside Cyanidin-3,5-diglucoside Cyanidin-3-sambubioside-5-glucoside Delphinidin-3-sambubioside Delphinidin-3-glucoside Cyanidin-3-sambubioside Cyanidin-3-glucoside				
Total Phenolics	—	—	—	65-79 mg/g (Brunswick Lab., U.S.A.)	37-49 mg/g (Lab. Nutricional Molecular, PUC)
Microbiological Analysis					
Mold	< 20 U.F.C./ml	< 20 U.F.C./ml	< 20 U.F.C./ml	< 1.000	< 1.000
Yeast	< 100 U.F.C. /ml	< 100 U.F.C. /ml	< 100 U.F.C. /ml	< 1.000	< 1.000
Total Coliforms	n.d. in 1 ml	n.d. in 1 ml	n.d. in 1 ml	absent	absent
Total Plate Count	< 100 U.F.C. /ml	< 100 U.F.C. /ml	< 100 U.F.C. /ml	< 10.000	< 10.000
Available Package Sizes	1 l Flask in Box with 12 flasks , 55 Gallon (65 °Brix) 200 Kg (50 °Brix), 50 Gallon (17 °Brix) Drum			1 and 5 Kg.	
Packaging	1 l : amber glass flasks, medical grade 55 Gallons: 4 mil. polyethylene pouch with 2 inches Spout and cap inside open head steel drum, with removable lid and seal			Polyethylene bag, placed inside a multi-laminated flexible pouch, isolated from light and moisture. To provide additional protection against moisture, Silica-Gel-sachets are included in the package.	
Shelf life and Storage	12 months at -18 °C batches stored outside of original Steel drum must be protected from artificial and sunlight			12 months in unopened original Package at 20 - 25 °C and < 60% R.H.,	

\* The ORAC fluorescent analysis with Fluorescein as a probe, measures the scavenging capacity of antioxidants against the peroxy radical, which is one of the most common reactive oxygen species (ROS) found in the body. ORAC hydro reflects the water-soluble antioxidant capacity. Trolox, a Vitamin-E analog soluble in water, is used as calibration standard; the ORAC result is expressed as micromol Trolox equivalent (TE) per unit.



Patagonol™ is the world's first and original natural extract obtained from Maquiberry (*Aristotelia chilensis*), a Patagonian Wild Berry with exceptionally high contents of phenolics whose antioxidant capacity is assumed to protect both LDL from oxidation and endothelial cells from intracellular oxidative stress.



**References:**

**Anthocyanins in Berry Fruit Juice of *Aristotelia Chilensis***  
Dr. Federico Leighton Pontificia Universidad Católica, Chile, 2007

**Juice and Phenolic Fractions of the Berry *Aristotelia chilensis* Inhibits LDL Oxidation in Vitro and Protect Human Endothelial Cells against Oxidative Stress**

Soledad Miranda-Rottmann, Augusto A. Aspillaga, Druso D. Perez, Luis Vásquez, Alvaro L.F. Martínez, and Federico Leighton. Presented on the Free Radical Biology & Medicine, XI Meeting of the Society for Free Radical Research Université René Descartes, J. Agric. Food Chem 2002, 50, 7542-7547

**Capacidad antioxidante de frutas y verduras cultivados en Chile**  
Héctor Araya L., Carolina Clavijo R., y Claudia Herrera, Universidad de Chile, facultad de Medicina, Universidad Tecnológica Metropolitana, Santiago, Chile, 2009

**Anthocyanins in Berries of Maqui (*Aristotelia Chilensis*)**  
Mol. Stuntz, Maria Teresa Escribano-Bailon, Cristina Alcalde-Eon, Orlando Muñoz, Julian C Rivas-Gonzalo and Celestino Santos-Buelga. Laboratorio Nutrición y Bromatología, Facultad de Farmacia, Universidad de Salamanca, Campus Miguel de Unamuno s/n E-37007 Salamanca, Spain; Facultad de Ciencias, Universidad de Chile, Las Palmeras 3425 Santiago de Chile. Phytochem. Anal. 17: 8-14 (2006)

**Análisis de antioxidantes fenólicos en Maqui**  
Dr. Álvaro Peña, Universidad de Chile, Facultad de Ciencias Agronómicas, Departamento de Agroindustria y Enología, 2002

**Berries nativos, récord en antioxidantes**

Carmen del Villar (journalist) Alvaro Peña, Carolina Fredes. Facultad de Ciencias agronómicas, Universidad de Chile. Revista del Campo, El Mercurio, Santiago, Chile, April 9, 2007

**Chile será el Segundo país del mundo en crear una lista con el poder antioxidante de su fruta (Chile will be the second country worldwide to create a list naming the antioxidant powers of its fruit)**

Carmen Rodríguez Frias (journalist) INTA, Universidad de Chile, Hernán Speisky El Mercurio (Vida y Salud) August 22, 2008

**El maqui es casi tan bueno como el vino (Maqui is almost as beneficiary as wine)**

Maria Paz Carvajal (journalist) Soledad Miranda-Rottmann, Augusto A. Aspillaga, Druso D. Perez, Luis Vásquez, Alvaro L.F. Martínez, and Federico Leighton El Mercurio, Santiago de Chile, 2002

**Berry Fruits: Compositional elements and Biochemical activities**

Navindra P. Seeram Center of Human Nutrition, David Geffen School, University of California, J. Agric. Food Chem 2008, 56: 627-629 (Comment: the first publication that suggests to categorize MAQUI as "Superfruit").

**Effect of *Aristotelia Chilensis* (Maqui) on Inflammation Response**

Hidalgo M.A, Jara E., Ojeda J., Hancke J.L., Burgos R.A. Laboratory of Molecular Pharmacology, Universidad Austral de Valdivia, CTI Salud 2008, unpublished

**Science behind Superfruits**

Liwei Gu, Food Science & Human Nutrition University of Florida, 2009 <http://fshn.ifas.ufl.edu/pages/gu.shtml>

**Antioxidant and cardioprotective activities of Phenolic Extract from fruits of *Aristotelia Chilensis* (Maqui).**

Carlos L. Cespedes, Mohammed El-Hafidi, Natalia Pavon, Julio Alarcon, Food Chemistry (Elsevier), 107 (2008), 820 – 829



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