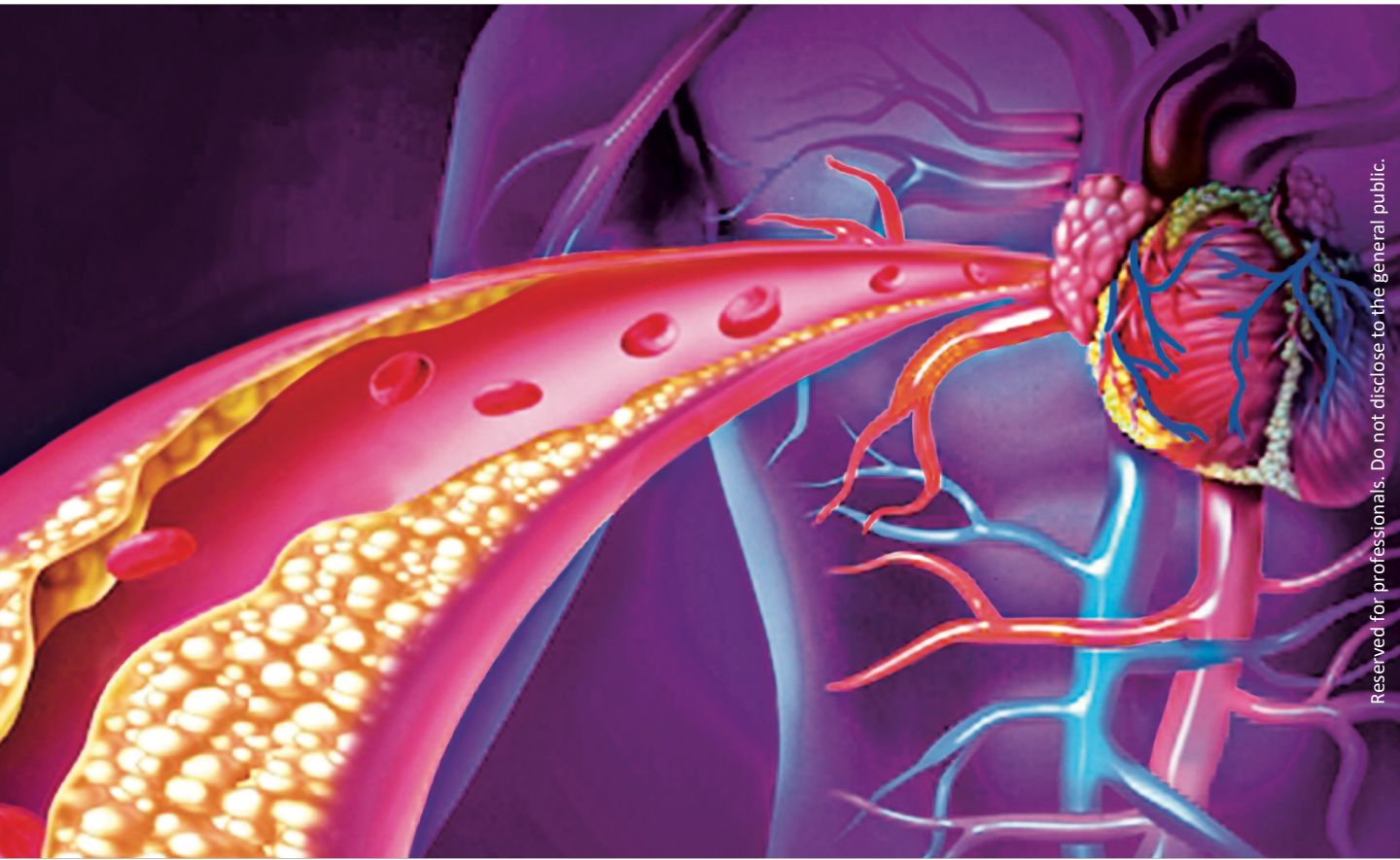


Glikur Advance

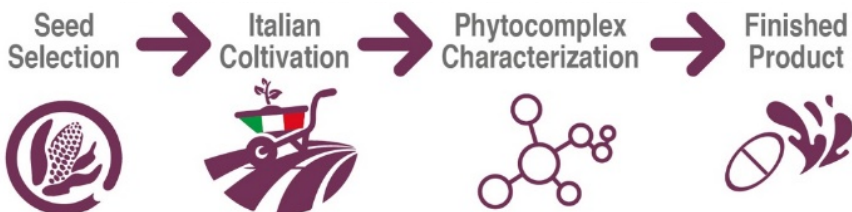
with Moradyn®

Anthocyanin rich purple corn variety



Reserved for professionals. Do not disclose to the general public.

From seed to shelf



GRICAR
SINCE 1970

Innovative Nutraceutical company

MORADYN®

Anthocyanin rich purple corn variety

Many studies have shown that regular consumption of anthocyanin-rich foods is associated with a reduced risk of chronic diseases, such as type 2 diabetes.

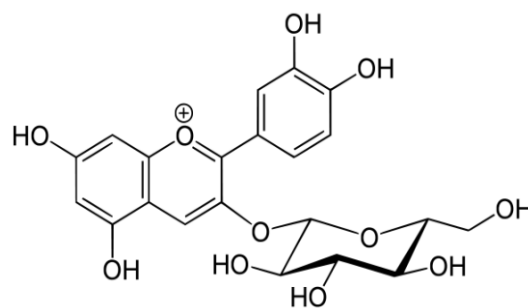


Moradyn® is a special extract of purple variety of maize (Zea mays L.) obtained with an exclusive extraction process to standardize anthocyanins

The Moradyn® purple variety of maize (Zea mays L) has been developed through a new breeding technique to obtain a high value-added corn variety, especially from the nutritional point of view, without altering the original genetic profile and without using of solvents.

Chemical properties of Moradyn®

Drug to Extract Ratio (DER)	25-30:1
Polyphenols (%)	≥8,00
Anthocyanins (%)	≥3,00
Flavonols (%)	≥5,00
Phenolic acid (%)	≥7,00



C-3-G (cyanidina-3-O-β-D-glucoside)

MORADYN®

Anthocyanin rich purple corn variety

MORADYN® and risk of type-2 diabetes

Moradyn® properties have been deeply investigated in co-operation with the Department of Pharmaceutical Science of the University of Pavia (UNIPV) – Italy. The study was focused on screening Moradyn® activity on stages leading up to onset of diabetes type-2.

The data indicated that Anthocyanins in Moradyn® variety, and more specifically C-3-G (cyanidin-3-O- β -D-glucoside), play a major role in the determination of its effectiveness.

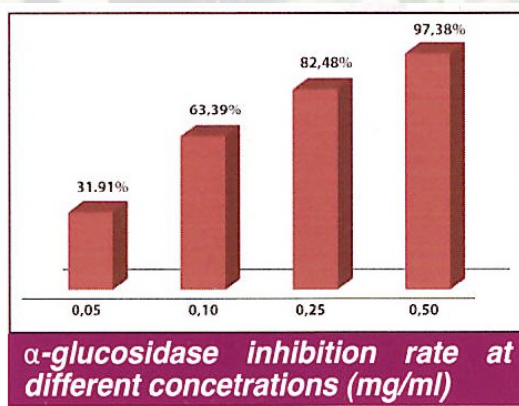
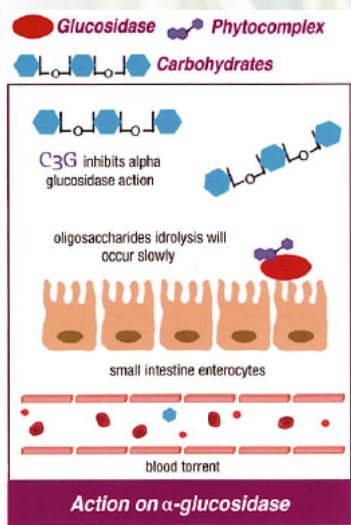
This extract has demonstrated to have two mechanisms of action:

- α -glucosidase and α -amylase inhibition
- antihyperglycemic and antioxidant activity

MORADYN® α -glucosidase inhibition

Inhibitory action on the α -glucosidase: positively modulates blood glucose value.

Moradyn® phytocomplex showed inhibitory activity on α -glucosidase and a great ability to manage glycaemia levels.

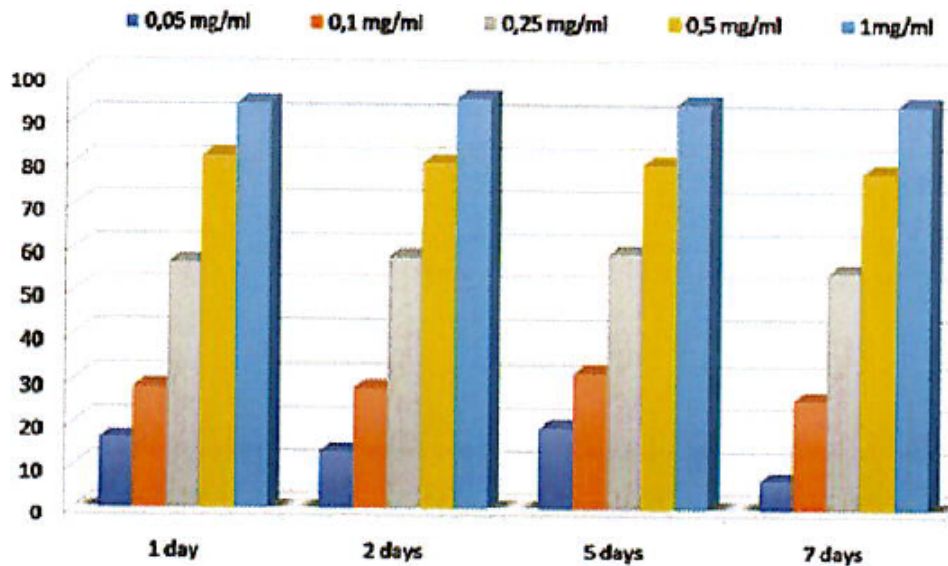
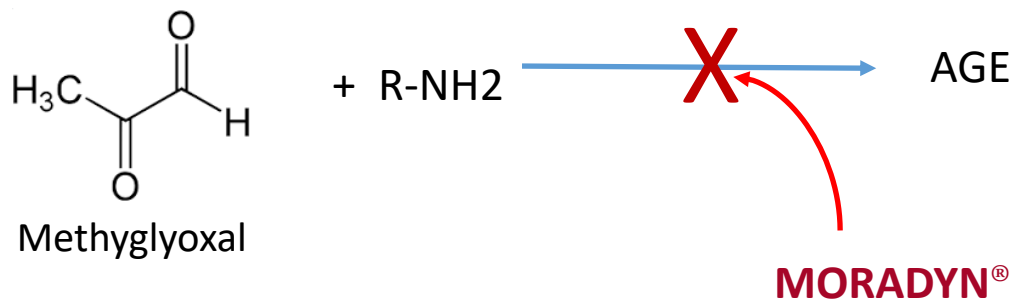


MORADYN®

Anthocyanin rich purple corn variety

MORADYN® antiglycative activity:

Inhibition of formation of Advanced Glycation End-products (AGEs) was pointed out by inhibition of reaction between albumin and some dicarbonyl compounds.



AGE's inhibitor with different concentration of Moradyn in bicarbonil BSA system

Glikur Advance

CLINICAL study

A clinical study was commissioned to Department of Pharmacy of the University of Naples Federico II in order to investigate if Glikur Advance is useful in reducing some diabetes disease risk factors.

Study design:

- randomized
- controlled
- parallel
- double-blind
- monocentric



81 Subjects:

GROUP 1: 27 subjects who took two tablets of Glikur Advance

GROUP 2: 27 subjects who took one tablet of Glikur Advance

GROUP 3: 27 subjects who have taken placebo

Inclusion criteria

- Impaired fasting glucose (IFG) between 98 and 125 mg/dl
- 18-75 years of age

Biochemical parameters

- Fasting plasma glucose (GLY)
- HbA1c (Glycated Haemoglobin)
- Renal and Hepatic toxicity

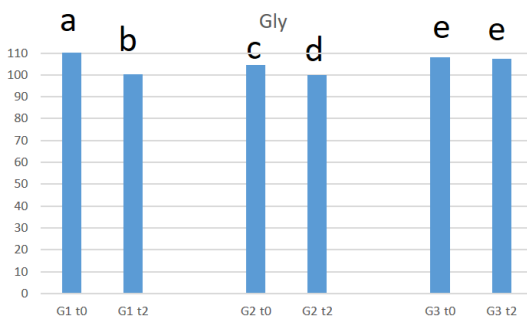
RESULTS

Glikur Advance at the dose of 2 tablets per day for the duration of three months is able to restore normal blood sugar levels and reducing glycated haemoglobin values, without inducing any liver or kidney toxicity.

Fasting plasma glucose

-10 % with 2 tablets/day

lower Gly to 100 mg/dl (normal range 70-100 mg/dl)

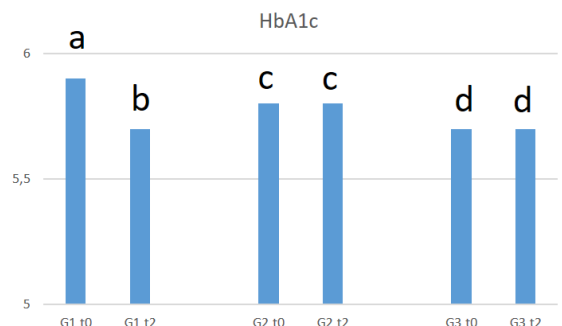


Change in blood sugar in relation to measurement in the three test groups

Glycated haemoglobin

-3,4% with 2 tablets/day

lower HbA1c to 5,7 (normal range 5,7-6,4%)

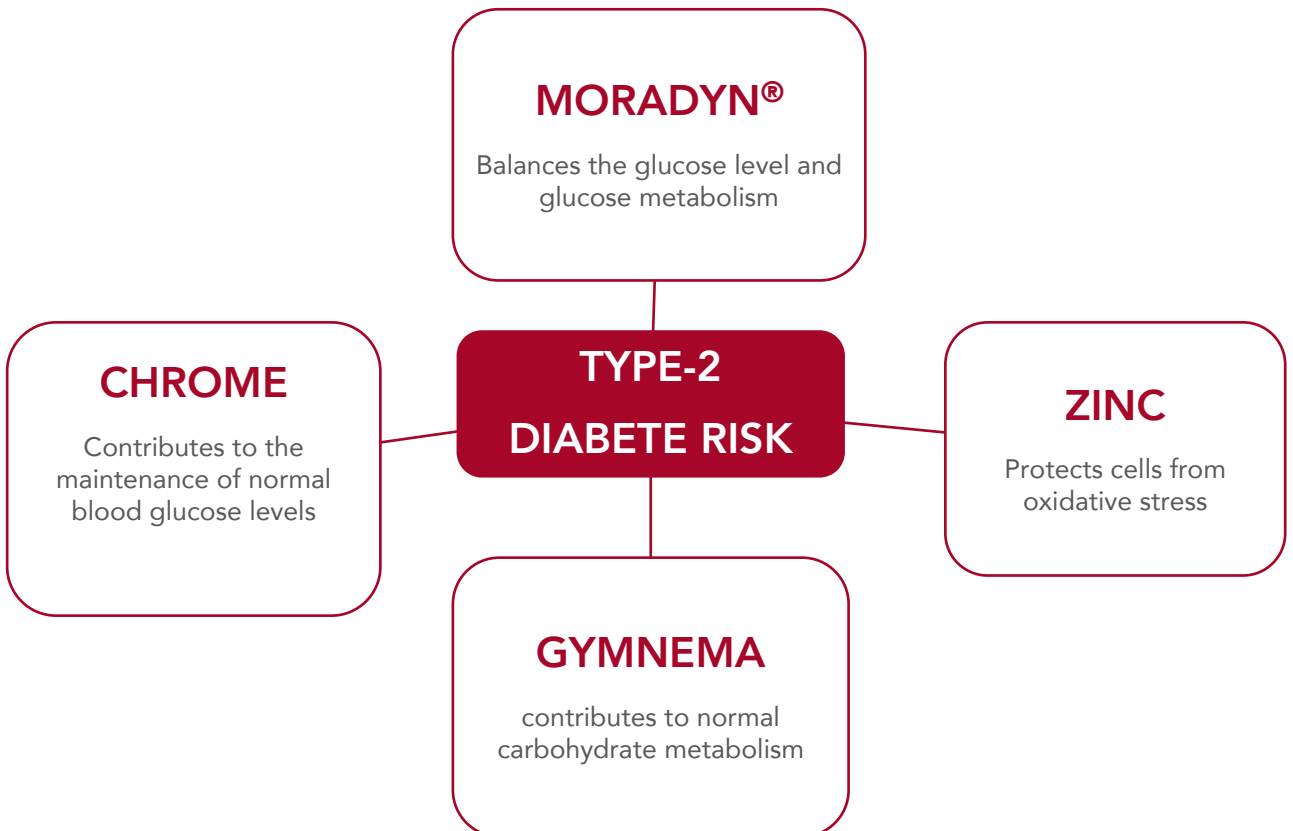
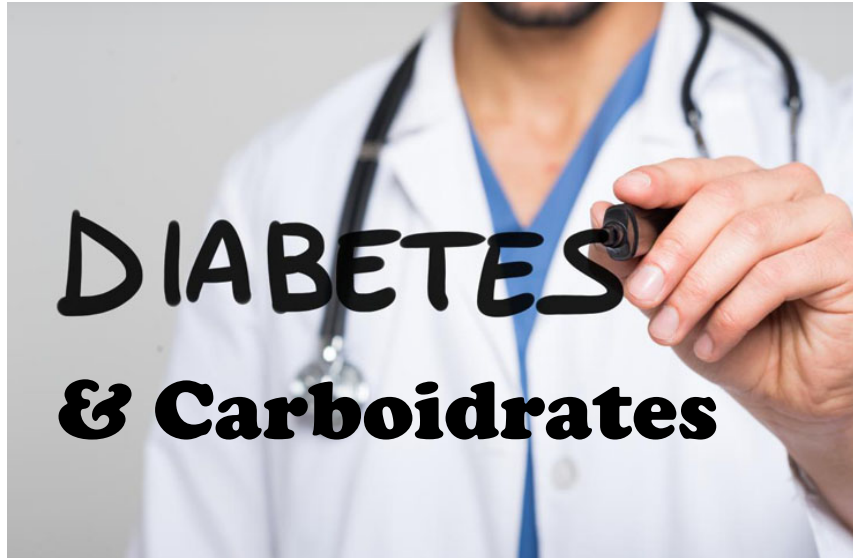


Variation of glycated haemoglobin in relation to measurement in the three test groups

Glikur Advance

An altered fast glycemia (blood sugar between 100-125 mg/dl) represents a higher risk of future development of type 2 diabetes.

It has been widely demonstrated that if you start to control hyperglycaemia values from the initial stage of pre-diabetes, you can delay or even prevent the onset of type 2 diabetes mellitus.



Glikur Advance

Is based on Moradyn®

Anthocyanin rich purple corn variety

The exclusive extraction process to standardize anthocyanins, makes Moradyn® a fundamental ingredient of the formulation studied for:

The balancing of glucose level and glucose metabolism

In addition Glikur Advance contains:

- **Chrome** that contributes to the maintenance of normal blood glucose levels
- **Zinc** that protects cells from oxidative stress contributes to normal carbohydrate metabolism
- **Gymnema extract** that contributes to normal carbohydrate metabolism

PRODUCT DESCRIPTION



Gluten free
Naturally Lactose free

GLIKUR ADVANCE is a food supplement with Moradyn®, Gymnema, Zinc* e Chrome, indicated in case of poor dietary intake or increased need for these nutrients. Zinc contributes to the protection of cells from oxidative stress, and with the Gymnema, to the normal carbohydrate metabolism. Chrome contributes to the maintenance of normal blood glucose levels and, together with Zinc, to the normal macronutrient metabolism.

How to use:

take 1 or 2 tablets a day, before main meals, to be swallowed with water.

Pack:

30 tablets

Shelf life:

36 months

NUTRITIONAL VALUES

INGREDIENTS	Per dose (2 tab)	%NRV*
Moradyn®	400 mg	-
Gymnema d.e. std. 25%	600 mg	-
Zinc	15 mg	150%
Crome	40 mcg	200%

*NRV: Nutrient reference values

Glikur Advance

with Moradyn®

Anthocyanin rich purple corn variety



BIBLIOGRAPHY

- Humble CG, Malarcher AM, Tyroler HA. Dietary fiber and coronary heart disease in middle-aged hypercholesterolemic men. *Am J Prev Med.* 1993 Jul-Aug
- Liu S, Stampfer MJ, Hu FB, Giovannucci E, Rimm E, Manson JE, Hennekens CH, Willett WC. Whole-grain consumption and risk of coronary heart disease: results from the Nurses' Health Study. *Am J Clin Nutr.* 1999 Sep
- Meyer KA, Kushi LH, Jacobs DR Jr, Slavin J, Sellers TA, Folsom AR. Carbohydrates, dietary fiber, and incident type 2 diabetes in older women. *Am J Clin Nutr.* 2000 Apr
- Aedin Cassidy, Kenneth J. Mukamal, Lydia Liu, Mary Franz, A. Heather Eliasson, Eric B Rimm. A high anthocyanin intake is associated with a reduced risk of myocardial infarction in young and middle-aged women. *Circulation.* 2013 Jan 15
- Tsuda T, Horio F, Uchida K, Aoki H, Osawa T. Dietary cyanidin 3-O-beta-D-glucoside-rich purple corn color prevents obesity and ameliorates hyperglycemia in mice. *J Nutr.* 2003 Jul
- Ramos-Escudero F, Muñoz AM, Alvarado-Ortiz C, Alvarado Á, Yáñez JA. Purple corn (*Zea mays* L.) phenolic compounds profile and its assessment as an agent against oxidative stress in isolated mouse organs. *J Med Food.* 2012 Feb
- Kang MK, Li J, Kim JL, Gong JH, Kwak SN, Park JH, Lee JY, Lim SS, Kang YH. Purple corn anthocyanins inhibit diabetes-associated glomerular monocyte activation and macrophage infiltration. *Am J Physiol Renal Physiol.* 2012 Oct
- Rie Sasaki, Natsumi Nishimura, Hiromi Hoshino, Yasuka Isa, Maho Kadowaki, Takahito Ichi, Akihito Tanaka, Shin Nishiumi, Itsuko Fukuda, Hitoshi Ashida, Fumihiko Horio, Takanori Tsuda. Cyanidin 3-glucoside ameliorates hyperglycemia and insulin due to downregulation of retinol binding protein 4 expression in diabetic mice. *Biochemical Pharmacology* 74 (2007) 1619-1627
- Toshiro Matsui, Tetsuya Ueda, Tomoyuki Oki, Koichi Sugita, Norihiko Terahara and Kiyoshi Matsumoto. r-Glucosidase Inhibitory Action of Natural Acylated Anthocyanins. 1. Survey of Natural Pigments with Potent Inhibitory Activity. *J. Agric. Chem.* 2001, 49, 1948-1951
- Bo Huang, Zhiqiang Wang, Jong Hyuk Park, Ok Hyun Ryu, Moon Ki Choi, Jae-Yong Lee, Young-Hee Kang and Soon Sung Lim. Anti-diabetic effect of purple corn extract on C57BL/KsJ db/db mice. *Nutrition Research and Practice* 2015;9(1):22-29
- Guzman Gerónimo, Alarcón-Zavaleta, Oliart-Ros, Meza-Alvarado, Herrera-Meza, Chávez-Servia. Blue Maize Extract Improves Blood Pressure, Lipid Profiles, and Adipose Tissue in High-Sucrose Diet-Induced Metabolic Syndrome in Rats. *Journal of Medicinal Food*, Vol. 20, No. 2
- Burton-Freeman B, Brzezinski M, Park E, et al. A Selective Role of Dietary Anthocyanins and Flavan-3-ols in Reducing the Risk of Type 2 Diabetes Mellitus: A Review of Recent Evidence. *Nutrients.* 2019. 11:841.
- Hostalek U. Global epidemiology of pre-diabetes- present and future perspective. *Clinical Diabetes and Endocrinology.* 2019. 5:5.
- Jeddy M, Torabi E. The Relationship between Zinc, Glycemic Control and Microvascular Complications of Diabetes Mellitus. *International Journal of Nutrition Science.* 2019. 4(3):130- 136.
- Kumar SN, Mani UV, Mani I. An open label study on the supplementation of *Gymnema sylvestre* in Type 2 diabetics. *J of Dietary Supplements.* 2010. 7(3): 273-282.
- Vincent JB et al. Effects of chromium on supplementation on body composition, human and animal health, and insulin and glucose metabolism. *Curr Opin Clin Nutr Metab Care.* 22(6):483- 489, 2019.
- Zuniga LY, Gonzalez-Ortiz M, Martinez-Abundis E. Effect of *Gymnema sylvestre* Administration on Metabolic Syndrome, Insulin Sensitivity, and Insulin Secretion. *Journal of Medicinal Food.* 20:8.

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MADE IN ITALY



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