



Fish Collagen Peptides



Naticol for natural and healthy refreshment

Foods and beverages with health benefits beyond basic nutrition are a subject of high interest and high demand. Consumers are more and more conscious about the importance to eat and drink healthily and the functional food and beverage market is going to be the new trend.

In this context Weishardt made the strategic choice to extend its expertise in collagen peptide beverages to the category of non-alcoholic/low alcoholic beers.

Since 2008, the non alcoholic/low alcoholic beer sales increased. Non alcoholic beers are not longer perceived as a distress purchase. They represent a natural and tasty choice to soft drink benchmarks.

With benefits targeting sport recovery/ musculoskeletal condition or beauty, market opportunities for collagen non alcoholic beers are numerous.

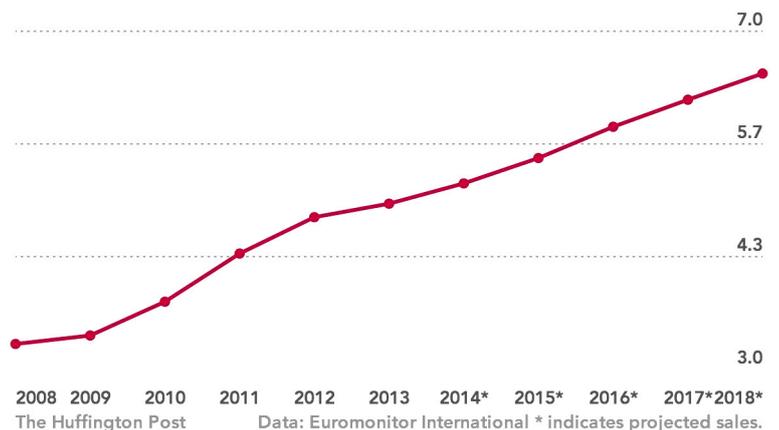


Figure 1 - Worldwide sales of low - and non-alcoholic beer in billions of U.S. dollars, according to Euromonitor.

Naticol® and non-alcoholic beer are an obvious and winning association for sport recovery and musculoskeletal condition

Nowadays, sport drinks are all about providing energy, improving performance and building lean muscle. They are geared more broadly toward the nutritional needs of athletes and physically active consumers. According to Business Food news (2013), one of the greatest evolution in this sport drink market has been the inclusion of proteins.





Fish Collagen Peptides

Proteins are recognized by EFSA to contribute to the growth of muscle mass and to the maintenance of normal bones and muscles. However, EFSA allows these claims about proteins for food which is at least a source of protein as referred to in the claim Source of protein as listed in the Annex to Regulation (EC) NO 1924/2006.

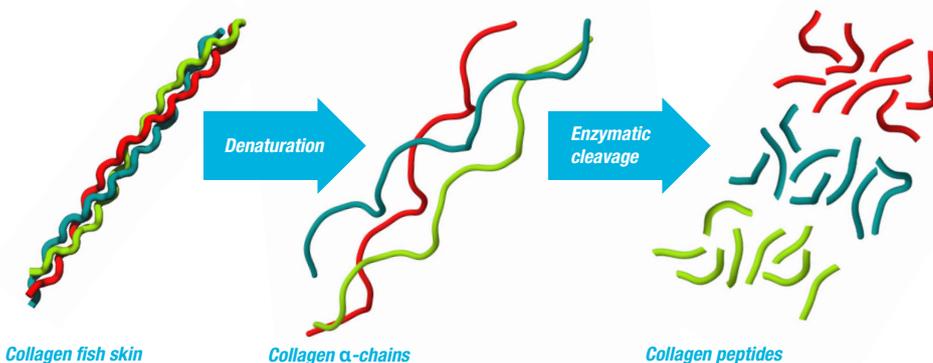
Naticol®, fish collagen peptides, is a pure and natural collagen protein (>99% protein, DM). Naticol is obtained from enzymatic hydrolysis of the collagen present in fish skins. As the most abundant protein in the organism, collagen is present in almost all tissue systems and organs (skins, tendons, ligaments, bones...).

Naticol®, fish collagen peptides, includes di- and tri-peptides which do not need further digestion in the body and can be absorbed faster and delivered directly to the muscles.

Naticol® also represents a good source of glycine, alanine, glutamic acid and arginine. These amino acids are involved in body's energy supply and metabolism. In particular, arginin and glycine, present at high levels in Naticol®, may play with phosphoric acid a role in muscular contractions, provide creatine and release growth hormones from the pituitary gland which may support performance gains.

Furthermore, the literature indicates benefits of fish collagen peptides to reduce pain in osteoarthritis, promote muscle mass, bone metabolism and bone microarchitecture in ovariectomized rats (Han et al. 2009).

Naticol®, specific fish collagen peptides, has scientifically demonstrated benefits in the musculoskeletal area.



Naticol®
Fish Collagen Peptides
Specific Type 1
Collagen peptides

Low Mw (2000 – 4000 Da)
Including **Di- and tripeptides**

Organoleptically neutral

High collagen content >99% DM

Essentials AA : Met, Leu, Val, Lys, Ile, Phe, Thr + Arg/ His (elderly)

Source of EFFICACY

Bio available

Bio active

Halal

Kosher

- > **Skin beauty**
- > **Musculoskeletal condition**
- > **Antioxidant & anti-inflammatory**
- > **Weight management**
- > **Protein diet (low GI/ Sport)**



Referring to sport recovery drinks and particularly to this market evolution for protein inclusions, we should also mention dehydration prevention which still remains an important issue in sport recovery. Dehydration results from the loss of water and important electrolytes from the body, including potassium, sodium, chloride and many other minerals. Electrolytes are minerals in the blood, urine and body fluids that have an electric charge. Maintaining the right balance of electrolytes and water may contribute to the body's blood chemistry, muscle action and other processes.

Non alcoholic beer consumption can be assimilated to an intake of water and electrolytes. Sodium, potassium, calcium, chloride, phosphate, magnesium and silicon are all electrolytes present in non-alcoholic beers.

Silicon is particularly important for the growth and development of bone and connective tissue. In the literature, it is shown that silicon stimulates collagen synthesis and a silicon supplementation of postmenopausal women with osteoporosis not only inhibits bone resorption but also increases trabecular bone volume and bone mineral density (Reffitt et al, 2003).

Flavones as phytoestrogens are also present in non-alcoholic beers. It has been reported that flavones inhibit the postmenopausal loss of bone mass. They have a major estrogenic effect in women and stimulate calcitonin secretion.

Naticol® and non-alcoholic beer are also an obvious and winning association for skin beauty

Skin appearance is a crucial issue as it is one of the most important dermatological concerns. Collagen peptides can make an important difference in the way the skin looks and even in how well it ages. According to the literature, due to antioxidant properties, they may slow down the collagen disorganization and destruction associated with dermal atrophy and skin aging.

Collagen peptides may also stimulate the fibroblasts for collagen regenerating and bring the specific amino acids required in collagen synthesis.

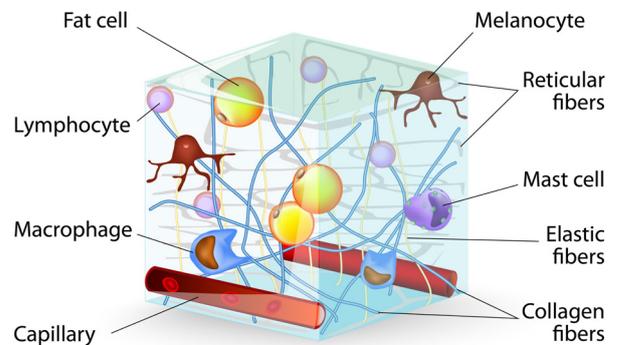


Figure 2 - Dermal connective tissue

Preclinical and clinical experiments investigating the effects of oral collagen peptide supplementation have indicated that collagen hydrolysates may stimulate collagen synthesis, repress skin damage caused by UVA due to antioxidant/anti-inflammatory activities. They may also help to maintain skin smoothness, hydration, elasticity and reduce skin wrinkles (Shynia et al. 2011).

Silicon which is present into non-alcoholic beer has also been indicated in the literature to stimulate collagen synthesis, to improve skin firmness and hydration (Barel et al, 2005; Reffitt et al, 2003).

Naticol®, fish collagen peptides, combined to bioavailable silicon present in non-alcoholic beers may contribute to skin beauty from within. Naticol® has clinically proven its benefits in skin firmness, hydration and wrinkle appearance.



Physico-chemical stability of a Collagen beer (Naticol®) is similar to a typical beer

Naticol® is physico-chemically stable to heat treatments such as pasteurization. Beers enriched in Naticol® (2g/33cl) did not show any physico-chemical constraints.

In the trials conducted by IFBM (French Institute for Brewing and Malting, Vandoeuvre Les Nancy), Naticol®, fish collagen peptides produced by

Weishardt was incorporated after filtration and before bottling and pasteurization.

There was no significant difference in terms of turbidity at the initial and at the end of the cycle between the two beers (with/without Naticol®).

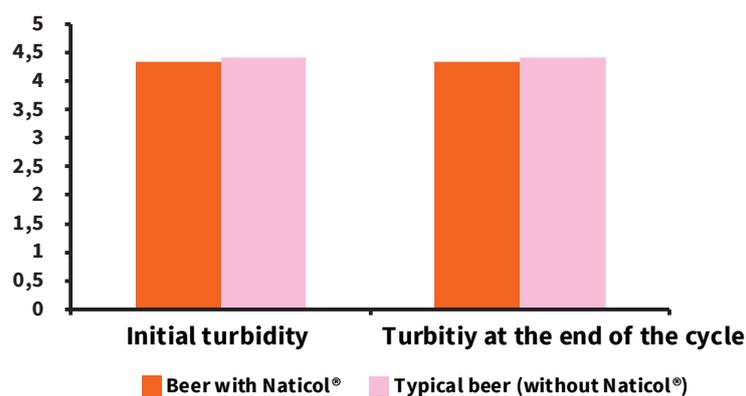


Figure 3 - Evolution of turbidity (at initial and at the end of the cycle) in two products (beer with Naticol® 2g/33 cl and beer without Naticol®).

Organoleptical profile of a Collagen beer (Naticol®) is similar to typical beer

The market of non-alcoholic brews is significantly growing, mainly because of new driving/ drinking rules, health and religious reasons. In this growing market for non-alcoholic beverages, a lack of flavour or foaming may represent a strong issue as a poor organoleptical profile is not accepted by the consumers. Hence, it is important to adjust palatability of non-alcoholic beverages to the typical alcoholic ones.

In this context, adding an active and natural compound such as Naticol® for Health benefits should answer positively to these organoleptical issues.

As a result of the trials conducted by IFBM (French Institute for Brewing and Malting, Vandoeuvre Les Nancy), figure 4 shows that bitterness, color and pH were unchanged while

comparing two beers (without Naticol® / with Naticol (2g Naticol®/33 cl)), at different times (Day1, Day10, Day30), after storage at 30°C. Globally, after 18 months, there were no significant differences of taste and foaming between the two products (without/with Naticol®).

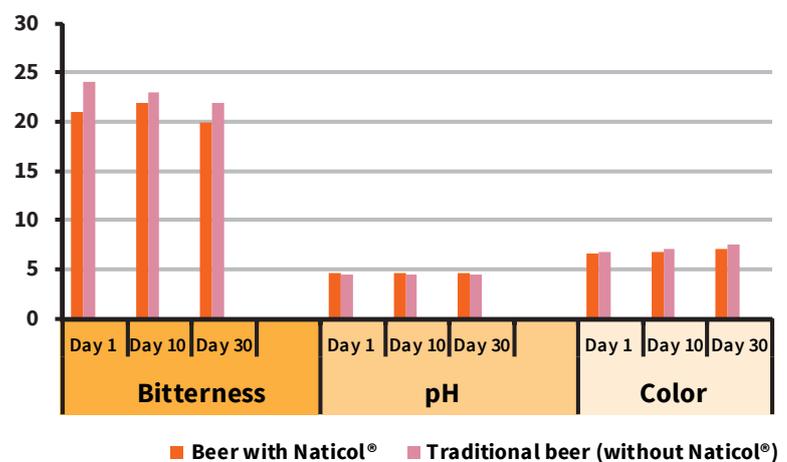


Figure 4 – Evolution of the properties (bitterness, pH, color) for a beer formulated without/with Naticol® (2g Naticol®/ 33 cl), after storage at 30°C.



WEISHARDT TODAY

Weishardt is a French company with more than 170 years of experience in the field of collagen. It's among the world leaders in the production and sales of collagen products.

Weishardt's innovative fish collagen peptides are registered under the trademark Naticol® and are

mainly directed to functional food and beverage applications, cosmetofoods, nutraceutical and well-being products.

Innovation is the key-force of the company that continuously looks for innovative and new health solutions to provide to its customers.



Weishardt

For more information, please contact :
WEISHARDT INTERNATIONAL
 Rond-Point Georges Jolimaitre - BP 259
 81305 Graulhet Cedex - FRANCE (FR)
Tel : + 33 (0)5 63 42 14 41
welcome@weishardt.com