BIBLIOGRAPHICAL REFERENCES

Ozone therapy can be an effective tool in the recovery of various gastrointestinal diseases. Ozone (O3) induction methods promote rapid and complete recovery of the gastric mucosa , eradication of Helicobacter pylori , reduce ulcer recovery time and attenuate the risk of incidence . The results of these studies demonstrate the absence of adverse effects and a total absence of symptoms (pain):

GERMICIDE AND BACTERICIDE: The slow release of ozone (O3), formaldehyde , trioxolane and lipoperoxide can destroy infectious germs through oxidation. As for the application of ozonated oils in ulcer exudates, the 1,2,4-trioxolanes present slowly decompose them, generating reactive oxygen forms such as hydrogen peroxide (H2O2).

REFERENCE: Zanardi, S. Burgassi, E. Paccagnini, M. Gentile, V. Bocci,4 and V. Travagli - What Is the Best Strategy for Enhancing the Effects of Topically Applied Ozonated Oils in Cutaneous Infections?, BioMed Research International, Volume 2013 (2013), Article ID 702949, 6 pages. Available at: http://dx.doi.org/10.1155/2013/702949

RELEASE OF GROWTH FACTORS: Ozone (O3) and other components of ozonated oils can release growth factors through local tissues (increased expression of PDGF, TGF-B and VEGF) remodelling their expression and stimulating the proliferative activity of fibroblasts and keratin.

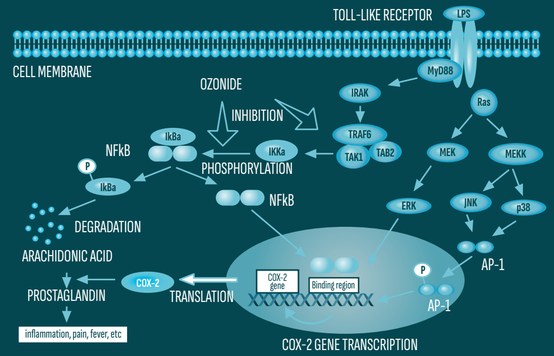
REFERENCE: Valacchi G, Lim Y, Belmonte G, Miracco C, Zanardi I, Bocci V, Travagli V - Ozonated sesame oil enhances cutaneous wound healing in rats, Wound Repair Regen. 2011 Jan-Feb;19(1):107-15. Available at: http://www.ncbi.nlm.nih.gov/pubmed/21134039 . PMID:21134039

ANTIOXIDANT: The controlled local oxidation of tissue by ozonated oil components can stimulate the endogenous expression of the oxidation mechanisms, i.e. the main components of the enzymatic antioxidant system: super oxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GPx). Studies show that the ingestion of ozonated oils exerts protective effects on gastric ulcers, only mediated by the stimulation of some of the aforementioned antioxidant enzymes, such as SOD and GSH-Px.

REFERENCE: Zamora Rodríguez ZB, González Alvarez R, Guanche D, Merino N, Hernández Rosales F, Méndez Cepero S, Alonso González Y, Schulz S.- Antioxidant Mechanism is Involved in the Gastroprotective Effects of Ozonized Sunflower Oil in Ethanol-Induced Ulcers in Rats, Mediators Inflamm. 2007;2007:65873. Epub 2007 Jan 18. Available at: http://www.ncbi.nlm.nih.gov/pubmed/17497036 . PMID:17497036

ANTI-INFLAMMATORY: To elucidate the mechanism of anti-inflammatory action of ozonated olive oil, we investigated the effects of ozonated olive oil on the generation of PGE2 generation and cyclooxygenase-2 (COX-2) expression in lipopolysaccharide (LPS)-stimulated macrophages – such as THP-1 cells.

Olive oil did not affect cell viability or morphology at the concentration used.



LPS-induced COX-2 expression and PGE2 generation in macrophage-like THP-1 cells were not affected by olive oil per se. However, ozonated olive oil inhibited both reactions in a concentration-dependent manner. Furthermore, ozonated olive oil inhibited the phosphorylation of IκB, which is necessary for the activation of nuclear factor kappa B (NFκB) and subsequent transcription of the COX-2 gene in LPS-stimulated macrophages. These results demonstrate that ozonated olive oil suppresses LPS-induced PGE2 generation in macrophage-like THP-1 cells by inhibiting gene transcription by suppressing the IκBα /NFκB pathway . Ozonated olive oil significantly inhibits the overproduction of PGE2 and the expression of COX-2 in THP-1 cells, similar to macrophages , stimulated by LPS. It was demonstrated that the effect of ozonated olive oil on the COX-2/PGE2 pathway is the consequence of the inactivation of NF κ B through the inhibition of the phosphorylation of I κ Bα as shown in Fig.5. In addition, ozonated olive oil can suppress the generation of LPS-induced proinflammatory cytokines such as TNF- α and IL-1β [2].

RECURRENT STOMACH PATHOLOGY : *HELICOBACTER PYLORI*

H. pylori, some people have asymptomatic infections , while others suffer from them with clear symptoms . The symptoms of a gastric disease arise during adulthood, however, H. pylori has its origin in childhood. This bacterium is present in more than half of the world's population, in underdeveloped countries it affects 80% of the population and in the more developed countries it affects 30%. Diagnostic techniques used can be direct, demonstrating the presence of the bacteria by culture or microscopy, or indirect, using urease, stool antigens, or an antibody response as a marker of the disease.

Recently, the importance of treating Helicobacter pylori infection in patients with gastrointestinal problems has been confirmed by researchers. Clinical studies show that the elimination of infection prevents duodenal ulcers, extensive lesions, recurrent gastric ulcers and prevents mucosa - associated lymphoid tissue lymphoma (MALT), by reducing the risk of developing gastric cancer in individuals with increased predisposition.

Helicobacter pylori, unfortunately, is increasingly resistant . There are several factors that contribute to the low recovery rate after treatment of Helicobacter pylori infection, such as ineffective penetration of the antibiotic into the gastric mucosa , inactivation of the antibiotic by the acidic secretion of the stomach, the lack of adherence to treatment by the patient and mainly the increase in cases of H. pylori strains resistant to antibiotics.

REFERENCE: Michael C. DiMarino, MD - Merk Manual, Professional version, 2014. Available at: http://www.merckmanuals.com/professional/gastrointestinal-disorders › Makola D, Peura DA, Crowe SE – Helicobacter pylori infection and related gastrointestinal diseases, J ClinGastroenterol, 2007 Jul. 41(6):548-58. Available at: http://www.ncbi.nlm.nih.gov/pubmed/17577110 . PMID: 17577110 Lelianov AD, Budrin VA, Novikov AS, Guseva ED, Nesterov AA, Kirsov PP -Optimization of the treatment of stomach ulcer in patients subjected to perforated gastroduodenal ulcer closure, EkspKlinGastroenterol. 2007;(5):81-5, 165. Available at: http://www.ncbi.nlm.nih.gov/pubmed/18389603 . PMID: 18389603

KEYBIOLOGICAL I+D

1. KeyBiological R&D Dept., PeroxibioKey molecular characterization, "Molecular characterization of the products obtained from the ozonation of olive and sunflower oils by establishing the exact molecular mass of the major components of both oils by means of spectrometry high resolution masses. (QTof) "

SUMMARY: Two ozonized samples with different degrees of ozonation are analyzed to establish how it affects the chemical composition of the final product. In addition, the ozonolysis starting materials are also analyzed to assist in the interpretation of the acquired data.

CONCLUSIONS: 9-oxononanoic acid (8) and azaleic acid (9) were found in the ozonated oils analyzed, as cleavage products of linoleic and oleic acid . This observation is in agreement with a previous study published by Tortini et. Alabama. where the authors found these fatty acid derivatives in ozonated sunflower oil using GC-MS.

Many triacylglycerol derivatives have been proposed as products of the ozonolysis reaction . These fatty acids are part of the structural compound of skin cells and have not been reported in ozonated oils so far .

2. KeyBiological R&D Dept., Cell viability in macrophages and murine fibroblasts. " Determine the cell viability of murine macrophages and fibroblasts (RAW 264.7 and 3T3 L1 – MBX cell lines) in the presence of different samples of PeroxibioKey ozonated oil using a colorimetric assay "

SUMMARY: Since cell cultures grow in aqueous-based culture media, for the cell viability test it was necessary to evaluate different sample dilution methods, with the aim of obtaining homogeneous solutions compatible with cell cultures: Dilution in PBS with 5% ethanol (EtOH) and Dilution in dimethyl sulfoxide (DMSO) and culture medium.

CONCLUSIONS: The analysis of cell viability in fibroblasts (3T3 L1-MBX), the tested oils do not significantly affect the survival of the cell line.

3. KeyBiological Dept. R&D, Efficacy Research, " Investigation of the effectiveness of PeroxibioKey ozonized oil samples "

SUMMARY: The suspension study will be carried out for each of the four samples, according to concentration and in triplicate, against Escherichia coli and Staphylococcus aureus. This test will allow to know quantitatively the bactericidal efficacy of the samples. The results will be expressed as a percentage of cell death.

CONCLUSIONS: The objective is to demonstrate, by performing a laboratory test, an observation that had been made in the ozonated oil samples: that these samples have antimicrobial activity.

To demonstrate this, a suspension antimicrobial efficacy test was proposed against two bacteria commonly used for this purpose: E.coli and S. aureus.

For a compound to be considered an effective antimicrobial, it must produce a death >99.00% (equivalent to R>2) during testing. Taking into account the results obtained from the test carried out, it can be concluded that all the oils tested have antibacterial activity.

4. KeyBiological R&D Dept., Evaluation of the antimicrobial activity of ozonated oil by microdilution test.

SUMMARY: The antimicrobial evaluation has been carried out by the method of determining the minimum inhibition concentration (MIC), which is the lowest concentration of an antimicrobial agent that can inhibit the visible growth of a microorganism after incubation for 24 hours. The MIC evaluation was carried out against Escherichia coli (IN italics) and Staphylococcus aureus (IN ITALICS), independently, in the presence of decreasing concentrations, after incubation for 24 hours.

CONCLUSIONS: The ozonated oil: 100% organic (60OIP) presents activity against Staphylococcus aureus and Escherichia coli at a concentration of 50%.

5. KeyBiological Depto. I+D, Evaluación de la actividad antifúngica del aceite ozonizado Peroxibiokey mediante ensayo de microdilución.

SUMMARY: Antifungal evaluation has been carried out by the method of determining the minimum inhibition concentration (MIC), it is the lowest concentration of an antimicrobial agent that can inhibit visible growth of a fungus after incubation for 48-72 hours. The evaluation of the MIC was carried out against Candida glabrata and Aspergillus fumigatus, independently, in the presence of decreasing concentrations of the products under study (50.00% / 25.00% / 12.50% / 6 .25% / 3.15% /1.56% / 0.78% / 0.39%) after incubation for 48 hours (C glabrata) and 72 hours (A fumigatus).

CONCLUSIONS: The results show that the ozonated oil presents fungal activity against Candida glabrata (IN italics) at a concentration of 6.25% and against Aspergillus fumigatus at a concentration of 12.5%.

6. KeyBiological R&D Dept. Research on cell viability. Establishment and maintenance of the Hep2 cell line (human hepatocytes).

SUMMARY: Using the MTT test, cell viability was determined spectrophotometrically based on mitochondrial activity in living cells. Abbreviation Composition: A1 Olive + Sunflower MP (50%), A2 OE100-60OECO, A3 Recycled ozonated oil, A5 MixOE50HA50-800.

CONCLUSIONS: The oils that showed lower viability were A2 and A5 compared to A1 and A3. The results of the study demonstrated that treatment of cells with encapsulated A2 oil (FA2) shows significantly higher viability than cells treated with non-encapsulated A2 oil (A2). In fact, treatment with the encapsulated oil (FA2) does not affect cell viability compared to the control (FA).

7. KeyBiological Dept. R&D. Safety and skin compatibility test in healthy adult volunteers.

SUMMARY: Under the supervision of a dermatologist, the product is applied to the patch and fixed on the upper back using an adhesive patch. In parallel, a blank test is carried without product. Duration and frequency: single application , for 48 hours.

EVALUATION: Clinical observations carried out by a dermatologist approximately 15-30 minutes after removing the patch. Verification of the absence of reaction by the volunteers 24 hours later.

CONCLUSIONS: Based on the results obtained with the adopted methodology, this product meets the requirements of the skin compatibility test, and can be classified as NON-IRRITANT with VERY GOOD SKIN COMPATIBILITY . The result obtained is CPI of 0.00

*Information for the exclusive use of professionals, which should not be understood as advertising. Not to be given to the general public.

PRODUCTS THAT TAKE CARE OF YOU

ADVANCED BIOTECHNOLOGY

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KEYOXYGEN

STOMACH CAPS

MUCOUS MAINTENANCE

OLIVE OIL + L-CARNOSINE & ZINC, MINERALS & VITAMIN A

STOMACH RELEASE CAPSULES

FOOD SUPPLEMENT

STOMACH CAPS

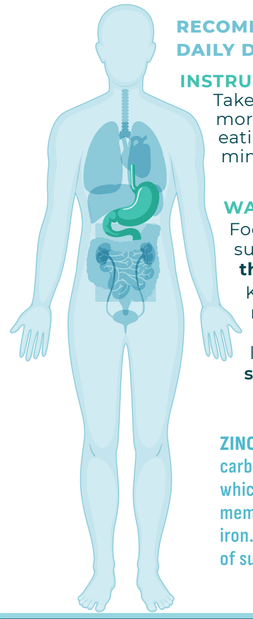
FOOD SUPPLEMENT

WITH **OLIVE OIL + L-CARNOSINE & ZINC, MINERALS & VITAMIN A**

STOMACH RELEASE CAPSULES

FORMULATION DESIGNED BY DOCTORS SPECIALIZED IN NUTRITION:

Dr. Isabel Sánchez Claros. Integrative doctor specializing in family and community medicine. **Expert in microbiota and clinical nutrition.**
Coll. No.: 131305167



RECOMMENDED DAILY DOSE: 4 CAPSULES

INSTRUCTIONS FOR USE:
Take **4 CAPSULES** a day , 2 in the morning for 20 minutes before eating any food, and 2 at night 20 minutes before eating any food.

- VEGAN PRODUCT, FREE OF INGREDIENTS OF ANIMAL ORIGIN

VEGAN

WARNINGS:
Food supplements should not be used as substitutes for a balanced diet. **Do not exceed the recommended daily dose.**
Keep out of reach of children . Product for adults. It is not recommended to take this product if you are pregnant or breastfeeding. A varied and balanced diet and a healthy lifestyle are important. **Store in a cool, dry place, away from sunlight.**

ZINC contributes to the normal metabolism of carbohydrates, fatty acids , macronutrients and **VITAMIN A,** which contributes to the maintenance of mucous membranes in normal conditions and to the metabolism of iron. **MOLYBDENUM** contributes to the normal metabolism of sulphur-containing amino acids.

INGREDIENTS:
BULKING AGENT (MICROCRYSTALLINE CELLULOSE), PEROXIBIOKEY® (TAPIOCA STARCH, OLIVE OIL, DEXTROSE MONOHYDRATE, ANTI-CAKING AGENT (SILICON DI OXIDE), NATURAL FLAVOURINGS), CAPSULE (COATING AGENT (HYDROXYPROPYLMETHYL CELLULOSE), BULKING AGENT (CALCIUM HYDROGEN PHOSPHATE), ZINC CITRATE, L-CARNOSINE, ANTI-CAKING AGENTS (SILICON DIOXIDE, MAGNESIUM SALTS OF FATTY ACIDS), RETINYL ACETATE (VITAMIN A), SODIUM MOLYBDATE.

COMPOSITION

PER 4 CAPSULES		NRV*
PEROXIBIOKEY	520 mg	
OLIVE OIL	130 mg	
L-CARNOSINE	40 mg	
ZINC	20 mg	200%
VITAMIN A	1500 µg RE	187,5%
MOLYBDENUM	200 µg	400%

*NRV: Nutrient Reference Value for vitamins and minerals.

KEYBIOLOGICAL.COM

CELLULAR NUTRITION
BIOTECHNOLOGY APPLIED TO THE INGREDIENT PEROXIBIOKEY®

PeroxiBiokey® · Unique manufacturing process, organic Extra Virgin Olive Oil (EVOO) (production respectful of natural resources, contributing to the sustainability of the environment and the agricultural environment), obtained at low temperature and under stable and controlled conditions, avoiding degradation of the Ingredient and respecting its properties.

DESCRIPTION:

STOMACH CAPS has the appropriate ingredients **specifically selected to improve the pathologies that develop in the upper gastrointestinal tract (mouth, esophagus and stomach).**

Most stomach diseases manifest themselves with pH imbalances, excessive stimulation or deficient acid production (caused by proton pump dysfunctions), which originate from microbial imbalances in the stomach, pharynx and mouth. These imbalances can cause damage to epithelial tissue, including gastric ulcers , inflammation and tissue damage. Patients may experience inadequate digestion, pain, and loss of appetite.

TISSUE REGENERATION

The adhesion of the product, thanks to the tapioca starch and dextrose monohydrate, contribute to the release of oxygen from the PeroxiBiokey® olive oil to the tissues, at a cellular level, thus providing them with energy (in the form of activation of ATP production) to perform their basic functions (tissue regeneration, regeneration of stomach mucus, recovery of the correct functioning of the proton pumps), **achieving an important advance in the recovery of the general functioning of the upper gastrointestinal tract, especially the stomach.**

RECOVERY OF THE MICROBIAL BALANCE

The KeyOxygen Stomach caps formula works to **restore the local bacterial flora**, thanks to the antiseptic regulating effect of PeroxiBiokey® olive oil, and on the **oxygenation / regeneration of proton pumps and damaged epithelia to restore their normalised functioning.**

SYNERGY IN THE FORMULATION

The formula with PeroxiBiokey® olive oil is supported by molybdenum, a key element in the synthesis of proteins that are part of the innermost layers of the epithelia, since it allows the normal metabolism of sulphur-containing amino acids, actively renewing damaged tissues, in the sulphation of mucous membranes, in the elimination of toxins, in sulphur disorders or SIBO.

The L-carnosine & Zinc complex complements the formula by actively protecting and repairing the gastric mucosa, as it has a broad anti-inflammatory effect and helps reduce the symptoms derived from reflux, helped by vitamin A that acts in synergy to repair the stomach mucosa and also **provides important support for the local immune system, which contributes to the acceleration of the patient's recovery to normal conditions.**

FOOD SUPPLEMENT

ANTIOXIDANT, HEALING AND REGULATOR OF BACTERIAL FLORA

The combination of L-Carnosine & Zinc, which is successfully used in Japan in the **treatment of ulcers and other gastric conditions** (gastritis and various symptoms of dyspepsia), **presents endoscopically visible results after just 4 to 8 weeks.** In addition, **the vitamin A - dependent protein (retinoic acid) facilitates intestinal absorption** not only of beta-carotene, but also of fatty acids, cholesterol, vitamin E and other carotenoids, **helping to maintain the health of the stomach mucosa.**

IMPROVEMENT OF STOMACH SYMPTOMATOLOGY

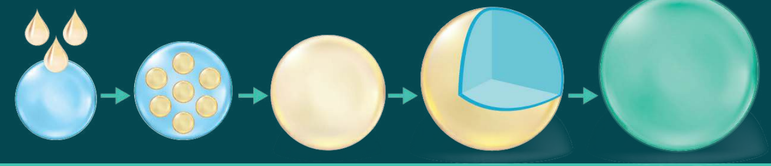
Bibliographic evidence indicates that **this combination stabilizes the integrity of the stomach walls, improving gastrointestinal motility, absorption capacity and resistance**, while stimulating its repair, and can also improve dysgeusia in patients undergoing chemotherapy . Its use has also been successfully used in neurodegenerative diseases.

- REGULATION OF STOMACH PH
- TISSUE REGENERATION
- NORMALISATION OF PROTON PUMP FUNCTION
- ANTI-INFLAMMATORY EFFECT, SIGNIFICANTLY REDUCING PAIN
- REGULATION OF THE DEVELOPMENT AND GROWTH OF BENEFICIAL INTESTINAL FLORA (H. PYLORI, E. COLI, SIBO…)
- CONTRIBUTES TO AN INCREASE IN INTESTINAL MOTILITY

PATHOLOGY	STOMACH CAPS POSOLOGY	IMMUNE CAPS POSOLOGY	K-BUTYRATE POSOLOGY
GASTRITIS	2-0-2 (15/20 MIN MINIMUM SEPARATED FROM FOOD INTAKE)	0-0-0	0-0-0
GASTRIC ULCER	2-0-2 (15/20 MIN MINIMUM SEPARATED FROM FOOD INTAKE)	1-1-1 (WITH OR WITHOUT FOOD)	1-0-0 (WITH BREAKFAST)
ESOPHAGITIS	2-0-2 15/20 MIN MINIMUM SEPARATED FROM FOOD INTAKE, OPEN CAPSULE)	0-1-0 (WITH OR WITHOUT FOOD)	0-0-0
GASTROESOPHIC REFLUX	2-0-2 (15/20 MIN MINIMUM SEPARATED FROM FOOD INTAKE)	0-0-0	0-0-0
H. PYLORI	2-0-2 (15/20 MIN MINIMUM SEPARATED FROM FOOD INTAKE)	0-1-0	1-0-0 (WITH BREAKFAST)
INTESTINAL CANDIDIASIS	0-0-0	1-1-1 (WITH OR WITHOUT FOOD)	1-0-0 (WITH BREAKFAST)
CELIAC DISEASE	0-0-0	1-1-1 (WITH OR WITHOUT FOOD)	1-0-0 (WITH BREAKFAST)

MICROENCAPSULATION TO IMPROVE EFFICIENCY AND STABILITY OF THE PRODUCT:

The PeroxiBiokey® olive oil ingredient present in STOMACH CAPS is subjected to a drying and encapsulation process in a dextrose matrix. The phospholipids of the oil, having a polar head, gather inside the vesicles formed when they come into contact with the tapioca starch, organizing themselves into microspheres with the oil inside. When these vesicles or microspheres reach their destination and become hydrated, they release their interior in the form of oil, thus achieving the intended effect at gastrointestinal level. The use of hard gelatin vegetable capsules allows us to release the vesicles exactly where we need them to achieve the desired effect. The release of the content of hard gelatin capsules can be useful in the recovery of pathologies present in the upper part of the upper gastrointestinal tract (mouth and esophagus).



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