OMICS Group International is an amalgamation of Open Access publications and worldwide international science conferences and events. Established in the year 2007 with the sole aim of making the information on Sciences and technology ‘Open Access’, OMICS Group publishes 400 online open access scholarly journals in all aspects of Science, Engineering, Management and Technology journals. OMICS Group has been instrumental in taking the knowledge on Science & technology to the doorsteps of ordinary men and women. Research Scholars, Students, Libraries, Educational Institutions, Research centers and the industry are main stakeholders that benefitted greatly from this knowledge dissemination. OMICS Group also organizes 300 International conferences annually across the globe, where knowledge transfer takes place through debates, round table discussions, poster presentations, workshops, symposia and exhibitions.
OMICS Group International is a pioneer and leading science event organizer, which publishes around 400 open access journals and conducts over 300 Medical, Clinical, Engineering, Life Sciences, Pharma scientific conferences all over the globe annually with the support of more than 1000 scientific associations and 30,000 editorial board members and 3.5 million followers to its credit.

OMICS Group has organized 500 conferences, workshops and national symposiums across the major cities including San Francisco, Las Vegas, San Antonio, Omaha, Orlando, Raleigh, Santa Clara, Chicago, Philadelphia, Baltimore, United Kingdom, Valencia, Dubai, Beijing, Hyderabad, Bengaluru and Mumbai.
### Phthalates Vs Time and $W_p/V_s$ Ratio

<table>
<thead>
<tr>
<th>Solute</th>
<th>$[\text{Solute}]_{\text{Init}}$, mg/mL</th>
<th>$[\text{Solute}]_{\text{obs}}$, mg/mL</th>
<th>$W_p$, mg</th>
<th>$V_s$, mL</th>
<th>Temp $\degree C$</th>
<th>Time, hr</th>
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AN INTRIGUING NUTRACEUTICAL APPROACH IN DOGS AFFECTED BY KERATOCONJUNCTIVITIS SICCA

Keratoconjunctivitis sicca (KCS) is a corneo-conjunctiva progressive inflammatory disease affecting either humans and dogs with tears production impairment and several ocular symptoms triggered by autoimmune imbalance.
CURRENT THERAPIES

- CYCLOSPORINE
- TACROLIMUS OINTMENT
- ARTIFICIAL TEARS
- STEROID DROPS
Evaluation of the complementary role of a 2 months administration (AIRMO Center) of a nutraceutical food in dogs whose immunosuppressive treatment had proven inadequate
Almost 10 years ago...

Genomic

PETS

Proteomic

Humans
Network of Human and Vet comparative: oncology, inflammation and neurodegeneration physiopathology, health maintenance, nutrition prevention and treatment

Focus on oncology with pet animals as sentinels of human diseases and potential recognition of health imbalances especially in old seek people
To match animals vs humans on a common pathophysiological and therapeutical basis and furthermore to comparatively explore the human/pet common background for more effective strategies in human health and disease
49 dogs of different breeds (mean age ± SEM; 6.01 ± 0.11 yr and mean weight ± SEM; 35.04 ± 1.04 Kg; 54% males, 46% females) with immune related Keratoconjunctivitis sicca symptoms (blepharospasm, mucopurulent ocular discharge, conjunctival chemosis and hyperemia, exposure keratitis with opacity appearance, vascularization and corneal pigmentation) were supplied with a regular amount of nutraceutical product named FORZA10 Immuno Ophthalmic over a 60 days period.
CONJUNTIVITIS AVERAGE INTENSITY

![Graph showing the average intensity of conjunctivitis over time for left and right eyes.](image-url)
KERATITIS AVERAGE INTENSITY

The graph shows the average intensity of keratitis over time for both eyes. The x-axis represents time (T0, T15, T30, T60, T90) and the y-axis represents intensity ranging from 0.00 to 1.00.

- **Left eye**: The intensity starts at 0.49 at T0 and decreases to 0.39 at T15, then increases to 0.39 at T30, decreases to 0.24 at T60, and increases to 0.29 at T90.
- **Right eye**: The intensity starts at 0.48 at T0 and decreases to 0.39 at T15, then decreases to 0.24 at T30, decreases further to 0.18 at T60, and increases to 0.30 at T90.

The graph indicates a trend of decreasing intensity over time for both eyes, with a slight increase towards T90.
CORNEAL PIGMENTATION AVERAGE INTENSITY
MUCUS AVERAGE INTENSITY

![Graph showing mucus average intensity over time for left and right eyes.](image-url)
THE NUTRACEUTICAL FORMULA

- fish proteins
- rice carbohydrates
- mellon superoxid dismutase
- *Ascophyllum*
- Astaxantina
- *Aloe vera*
- papaya
- *Punica granatum*
- Green tea
- *Polygonum lapathifolium*
- Curcuma
- Piper nigrum
- Zinc
- Omega 3/6 ratio of 1:0.8
**ON THE HUMAN SIDE...**

*Melon superoxide dismutase:* antioxidant and anti-inflammatory properties (Vouldoukis et al. 2004)

*Ascophyllum nodosum:* reduction in subjective hunger sensations, increase in satiety and **fullness** (Mayer et al. 2014); α-amylase and α-glucosidase inhibition activity (Kim et al. 2014); antioxidant activities (Abu et al. 2013); antitumor activity through the activation of the host immune system (Jiang et al. 2014)
Astaxantin: neuroprotective effect in rats through suppression of cerebral inflammation downregulating NF-κB activity and the expression of inflammatory cytokines and intercellular adhesion molecule-1 in both messenger RNA transcription and protein synthesis (Zhang et al. 2014); Protective effect on liver fibrosis in mouses by decreasing the alanine aminotransferase aspartate aminotransferase and hydroxyproline levels and decreasing the expression of NF-κB and TGF-β1 and maintaining the balance between MMP2 and TIMP1 (Shen et al. 2014); nephropathy amelioration in rats by decreasing the malondialdehyde (MDA) and protein carbonyl (PCO) levels (Sila et al. 2014)
Aloe vera: anthrone, chromone, aloe verasin, and hydroxyaloin, **antiinflammatory activity** (Hu, 2003); **immune stimulation** by polyglucans, lectins (Aloctin 1) which significantly support the formation of specific and nonspecific antibodies (Boudreau and Beland, 2006, Akev 2007); Glucmannan and acemannan accelerate **wound healing**, **activate macrophages**, **antineoplastic** and **antiviral effects** (Zhang, 1996; Ramamoorthy, 1996)
Papaya: anti-tumor activity and immunomodulatory effects by reducing IL-2 and IL-4 production in PBMC, IL-12p40, IL-12p70, IFN-γ and TNF-α enhancement and CCL2, CCL7, CCL8 and SERPINB2 upregulation as index markers of the immunomodulatory activity (Otsuki et al. 2010)
*Punica granatum*: amelioration of diabetic neuropathic pain due to remarkable hypoglycemic activity with drop in the mice glucose levels and gradual rise in serum CAT activity *(Raafat et al. 2014)*; free radical scavenging, anticarcinogenic, anti-inflammatory, and effectiveness in the treatment of cancer, cardiovascular disease, Alzheimer's disease, arthritis, and erectile dysfunction *(Baliga et al. 2013)*; \(\alpha\)-glucosidase and maltase inhibitory effects due to Triterpenes presence *(Salah et al. 2014)*
**Green tea:** increase of total antioxidant capacity (T-AOC) and glutathione peroxidase (GSH-Px) activity in liver tissues of Sprague-Dawley rats with induced hepatocarcinogenesis due to a down-regulation of cellular nuclear factor erythroid-2-related factor-2 (Nrf2) and up-regulation of peroxiredoxin-6 (P6) expression (**Zhou et al. 2014**); non-small-cell lung cancer cell line proliferation and B-cell lymphoma-extra large (Bcl-xL) mRNA expression level reduction by Epigallocatechin-3-gallate (EGCg) (**Sonoda et al. 2014**).
Polygonum lapathifolium: high capability of absorbing and accumulating Zn (Cui et al. 2006); significant inhibitory effects on the Epstein-Barr virus early antigen activation by tumor promoters (Takasaki et al. 2001)
**Curcuma:** decrease of inflammatory cytokines expression in the adipose tissue (Neyrinck et al. 2013); strong reduction of PMA-stimulated adhesion and superoxide production, spontaneous apoptosis stimulation and inhibition of IL8 and Bcl2A1 gene expression of ovine neutrophils (Farinacci et al. 2009); downregulation of Th1 cytokine response and NO production by macrophages, and their upregulation in NK cells (Bhaumik et al. 2000).
**Piper nigrum:** its extracts (β-caryophyllene, limonene, sabinene, 3-carene, β-pinene, and α-pinene) are endowed with antioxidant activity (Bagheri et al. 2014)

**Zinc:** Zinc regulate NF-κB activity during innate immune activation (zinc transporter SLC39A8 (ZIP8) is a transcriptional target of NF-κB and functions to negatively regulate proinflammatory responses through zinc-mediated down-modulation of IκB kinase activity in vitro) (Liu et al. 2013)
Omega 3/6 ratio of 1:0.8: essential for the development of a child's brain (Bernard et al. 2013); reverses endothelial dysfunction and oxidative stress in experimental menopause (Gortan Cappellari et al. 2013); low serum n-3/n-6 polyunsaturated fatty acid ratio is associated with high vulnerability of coronary plaques (Kashiyama et al. 2011)
TAKE HOME MESSAGES

- Humanization of domestic animals can be a valuable strategy for dietary interventions studies.

- Based on clinical evidences humans and pets might have a very intriguing borderline mutual benefit in the functional foods area.

- The lesson of functional foods administration to the dog potentially might be addressed to human beings. Chronic food ingestion might infact modify the genetic background and prevent or treat many diseases.
- **Possible gaps in human nutrition**: the taste of functional foods might be a drawback to their prolonged intake; in fact the turnover of varied menus is utmost appealing for human nutrition

- **Gut microbiota modulation by probiotics/prebiotics administration** may reduce the risk of disease

- “...food will be your medicine...” (Hippocrates)
THANK’S FOR YOUR ATTENTION!
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Dr. Alessandro Di Cerbo (mail: alessandro811@hotmail.it; tel: 00390594222483)
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