

## Research News

A 4-year research program on "Sasha's blend" has recently come to a close and the results have been very exciting. Interpath Pty Ltd. (Ballarat, Australia) funded research conducted by Cantox scientist Dr. Wendy Pearson. This research demonstrated that Sasha's EQ (an equine joint supplement composed of marine concentrate actives and a bioactive plant extract produced by Interpath Pty Ltd) effectively inhibits destruction of cartilage by inflammation and reduces *in vitro* formation of PGE<sub>2</sub> and nitric oxide – key molecules in the transmission of pain – and increased viability of cells in cartilage explants. Upon completion of *in vitro* experiments, Sasha's EQ also showed PGE<sub>2</sub>-inhibition activity in a model of joint inflammation in horses. In this study, 10 horses received either a control diet (5 horses) or a

diet containing Sasha's EQ (15 g/day; 5 horses) for 4 weeks. Two weeks after supplementation, each horse was challenged with an injection of low-dose interleukin-1 (IL-1) into the knee joint to cause changes in the biochemistry of the joint that are typical of those seen in joint disease. Dietary Sasha's EQ reduced formation of PGE<sub>2</sub> caused by IL-1 by more than 50% compared with control horses. The product also increased synovial fluid glycosaminoglycan (GAG) content of the synovial fluid prior to IL-1 injection and prevented any further increase in GAG by injection of IL-1. These data are supportive of a beneficial anti-inflammatory role of Sasha's EQ in equine joint disease, and further research on this product is currently under development.

## Hot Off the Press...

- Pearson W, Orth MW, Karrow NA, Lindinger MI. (in press) Effect of simulated digest of a dietary nutraceutical (Sasha's EQ™) and indomethacin on PGE<sub>2</sub> and NO production, release of GAG and viability of chondrocytes in IL-1-stimulated cartilage explants. *American Journal of Veterinary Research*.
- Pearson W, Lindinger MI. (2008) Simulated digest of a nutraceutical composite (HyalCare) modifies effect of IL-1 in a cartilage explant model of inflammation. *Journal of Veterinary Pharmacology and Therapeutics*. 31:268–271.
- Pearson W, Lindinger MI (2008) Critical review of equine research evaluating glucosamine-based nutraceuticals for treatment of joint pain and degenerative joint disease in horses. *Proceedings of the MidAtlantic Nutrition Conference*.

## Upcoming Events

- **Aug 3-8, 08** Society for Medicinal Plant Research Annual Meeting (Athens, Greece) <http://www.ga-online.org/files/Athens/FA2008.pdf>
- **Sep 10-13, 08** British Equine Veterinary Association Congress (Liverpool, UK) <http://www.beva.org.uk/node/299>
- **Sep 22-24, 08** Innovet (Saint-Hyacinthe, Quebec) <http://www.innovet.ca>
- **Nov 9-14, 08** 4th World Congress on Medicinal and Aromatic Plants (Cape Town, South Africa) <http://web.up.ac.za/default.asp?ipkCategoryID=4943&ArticleID=15>
- **Nov 10-11, 08** Agriculture is Changing (AIC) 2008--Royal Agricultural Winter Fair (Toronto, ON) <http://www.cantox.com/AIC/index.html>
- **Dec 6-10, 08** 54th Annual Meeting of the American Association of Equine Practitioners (San Diego CA) <http://www.aap.org/convention.htm>

**Do you have some exciting research data on one of your products or an upcoming event?**

Find out how you can highlight it in our newsletter by sending an email to [agri@cantox.com](mailto:agri@cantox.com).

## Agriculture is changing! A Congress on Nutraceuticals for Animals

Conventional medicines and synthetic drugs in livestock production are increasingly replaced with natural alternatives, with remarkable results. Once a niche market with minimal global impact, nutraceuticals and natural products are poised to revolutionize global livestock production. The global consumer is ready to embrace food products from livestock raised with natural alternatives to drugs and antibiotics, but to date there has been no focal symposium to discuss the implications and challenges of incorporating nutraceuticals into livestock management and production. In conjunction with the Royal Winter Fair in Toronto, Cantox Health Sciences

International is celebrating natural animal supplements with the first annual Agriculture Is Changing (AIC) congress. Sessions will include discussions on research in horses, cattle, poultry and other livestock species. There will also be discussions on economic and market challenges with respect to the regulatory environment for nutraceuticals in North America and Europe, intellectual property and patents, and quality control. And our Sponsor Session will be an excellent opportunity for our sponsors to highlight research and/or innovative products to potential new partners and/or clients.

**For more information on Sponsorship Opportunities, Abstract Submissions and Registration for AIC 2008, visit <http://www.cantox.com/AIC/Index.html>.**

**See You at the Fair!**

This quarterly newsletter produced by Cantox Health Sciences International will keep you up-to-date on new research results, brief reviews of current research, and exciting events of interest to the global market for veterinary nutraceuticals. Email us with your research news, upcoming events and business news items at [agri@cantox.com](mailto:agri@cantox.com).

This newsletter is provided for informational purposes only and does not represent endorsement by Cantox for any products mentioned.

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# Mini Review

## Anise (*Pimpinella anisum*)

Anise enjoys a long historical use as an expectorant and a tonic for coughs. The Greeks used it to prevent seizures, and it was one of the world's earliest perfumes.

Contemporary research into the efficacy of Anise focuses on the presence of the volatile oil "anethole". This compound is structurally similar to adrenaline<sup>1</sup>, which is vasodilatory in skeletal muscle and the heart, and has a stimulating effect on CNS respiratory regulation. The dimers of anethole are structurally similar to a number of oestrogenic compounds, including stilbene and stilboestrol, which may account for the observed effects of Anise on the promotion of various female characteristics.

### *Anise as a supplement in animal feed:*

Anethole is carminative and expectorant,<sup>2</sup> suggesting anise may be a useful respiratory tonic for animals with respiratory disease. Anise has also shown significant anti-ulcer effect in mice.<sup>3</sup> An interesting recent study demonstrates that including essential oil of anise in animal feed for 35 days significantly inhibits fungal growth<sup>4,5</sup> and subsequent mycotoxic accumulation in the feed.<sup>4</sup> Anise

essential oil also decreases rumen acetate to propionate ratio, branched-chain volatile fatty acids, ammonia nitrogen concentrations, and protozoal counts in heifers fed an anise-supplemented diet.<sup>6</sup> This suggests that the oil may improve feed utilization in these animals.

*Adverse effects:* Aniseed and anise oil have been reported as severely irritating to the skin in some individuals.<sup>7</sup> This reaction was attributed to anethole. The isolated oil of



anise is very toxic (human toxic dose – 1-5mL) and ingestion can cause nausea, seizures and fluid in the lungs.<sup>8</sup> Animals should never be fed purified oil of anise. Anise is reported to stimulate spontaneous abortion,<sup>9</sup> and its use is contraindicated in pregnant animals.

### References

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3. Leung, A.Y. (1980) *Encyclopedia of Common Natural Ingredients Used in Food, Drugs and Cosmetics*. New York-Chichester, Wiley.
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6. Kosalec, I.; Pepeljnjak, S.; and Kustrak, D. (2005) Antifungal activity of fluid extract and essential oil from anise fruits (*Pimpinella anisum* L., Apiaceae). *Acta Pharm*; 55(4):377-85.
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9. Duke, J.A. (1985) *Handbook of Medicinal Herbs*. Boca Raton: CRC.

## In Profile with...

### INTERPATH

Interpath is a research and Development Company, focused on the practical application of state-of-the-art science. Current nutraceutical and pharmaceutical clinical and laboratory research programs have applications in both the veterinary and human medicine arenas. Interpath takes an evidence-based medicine approach to developing their product range.

Based in Ballarat, Australia, Interpath utilizes leading research facilities globally to undertake their research projects. All intellectual property is owned by Interpath with several patents filed based on new discoveries.

Interpath's commitment to Scientific excellence is being highlighted with invitations to present important new research findings at the world's two most prestigious equine veterinary conferences this year: The British Equine Veterinary Association (BEVA) Conference to be held in Liverpool in England in September 2008 and the American Association of Equine Practitioners Annual Convention to be held in San Diego in December 2008.

Interpath has become the Australasian leader in their field and in recent years has established a significant presence internationally. The future for Interpath is very bright and will be enhanced with the establishment of strategic alliances with key research and distribution partners globally ensuring optimum research options and maximum penetration for launching of their new products.

For more information on Interpath and their products please visit: [www.interpath.net.au](http://www.interpath.net.au).



## Regulatory News

### April 2008

- US FDA to ban cattle material from feed – By April 2009, materials originating from certain cattle parts will no longer be included in food or animal feeds, including companion animal feeds. Under the FDA Final Rule the entire carcass of positive BSE cattle; tallow derived from BSE-positive cattle; spinal cords and brains from cattle over 30 months old, and; carcasses of cattle over 30 months old that were not inspected for human consumption and from which the brain and spinal cords are not removed are banned from inclusion in feeds. The FDA had already banned the use of mammalian proteins in ruminant feeds in 1997. This new ban is in addition to the current rules and another form of disease prevention.

### May 2008

- US Agriculture Secretary announces total ban on the slaughter of cattle, for consumption, that are too sick or weak to walk. These sick or weak cattle are termed "downers." In the past, cattle passing the initial veterinary inspection but later becoming sick or weak before slaughter may have still been slaughtered for consumption. Under the proposed ban no "downers" will be slaughtered to reduce risk of disease spread.
- The World Organization for Animal Health (OIE) promotes international harmonization of veterinary education practices. The OIE answered the call of deans of important veterinary facilities in the US, Canada, and Mexico to create a global body that could provide basic requirements for veterinary education to be applied worldwide to standardize education.