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**JIVT: An introduction**

*The Journal of Integrative Veterinary Therapies (JIVT)* is a biannual publication of CIVT. The Journal publishes material on all aspects of integrative veterinary medicine including Chinese and Western herbal medicine, natural nutrition, environmental medicine, philosophy, history, clinical cases and commentary.

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Email your letters to editor@civtedu.org
Herb-Drug Interactions in Cancer Therapy: Friend or Foe?

Steve Marsden
DVM ND MSOM Lac DiplICH CVA AHG

Introduction: It is standard practice for veterinary and medical oncologists to discourage patients and clients from using alternative therapies during cancer treatment. The rationale is that, since many alternative therapies are antioxidants, they could interfere with chemotherapy and radiation which kill tumors in part by inducing oxidative stress.

How well informed is this argument? One of the banes of herbal medicine research is that it has spawned abundant speculations of herb-drug interactions. Many of these have no basis in actual clinical experience and remain theoretical concerns only.

This paper provides a brief overview of the few systematic reviews and meta-analyses that looked at whether deleterious herb-drug interactions exist in cancer therapy. All studies listed in pubmed for this topic were included in this survey and will be individually addressed. All studies in print at present pertain to humans.

Platinum-Based Chemotherapy for Lung Cancer: Platinum-based chemotherapeutics such as cisplatin interfere with tumor cell DNA replication and are effective antineoplastic agents against a wide variety of tumors. Unfortunately, the drugs are also quite toxic, causing ototoxicity, bone marrow failure, renal damage and neurological damage.

Lung cancer is one of the tumors treated with cisplatin. From a Chinese medical perspective, the shortness of breath that accompanies it is considered a sign of Lung Qi (ie power) deficiency. The Lung Qi tonic Shenqi Fuzheng (Tonify the Qi and Support the Correct Formula) is an injectable drug concocted from Astragalus (a well known immune stimulant) and Codonopsis roots. Concomitant use of the formula with platinum drugs enhanced efficacy and reduced toxicity in multiple clinical trials. This is one of the few large scale studies that was able to focus on a specific complementary therapy.

Use of CHM as Adjuvant Treatment for Non-small Cell Lung Cancer: This study reviewed 15 trials, encompassing 900 patients, where Chinese herbal medicine (CHM) was used as an adjuvant treatment along with chemotherapy for non-small cell lung cancer. No interference with chemotherapy effectiveness was found, but an improved quality of life was noted in those who took herbs, along with reduced anemia and neutropenia secondary to chemotherapy.

Adjuvant Phytotherapy in the Treatment of Cervical Cancer – A Systematic Review and Meta-Analysis: This study examined 18 trials, encompassing 1,700 patients, where herbal medicine was used as an adjuvant to the conventional treatment of cervical cancer. In patients who took herbs, higher one-year survival rates were noted. In addition, the tumor remission rate was higher in the group that received herbal medicine. The review found fewer side effects were experienced in the group who took herbs, on a par with the
relief typically experienced with pharmaceuticals’ use. No interference with conventional treatment was noted.

**Chinese Medicinal Herbs to Treat the Side-effects of Chemotherapy in Breast Cancer Patients:** This study, published by Cochrane, found that quality of life was improved in patients receiving CHM. They experienced less bone marrow suppression from chemotherapy and no interference with treatment outcomes.

**Medicinal herbs for esophageal cancer:** Another Cochrane study found similar results in esophageal cancer to those achieved in breast cancer – an improved quality of life and no interference with conventional therapies.

A final study examined 49 trials encompassing 4,000 patients and concluded that the benefits of herbal therapy, in tandem with conventional therapy, are not in doubt. Benefits include:

- Improved quality of life
- Reduced side effects
- Increased survival
- Tumor regressions

**Conclusions:** All reviews to date have found no negative impacts of integrating herbal medicine with cancer therapies, this would not be expected given the general moratorium on their use by oncologists. That stance has no clinical support thus far. On the contrary, no negative studies can be found regarding the use of herbs with conventional cancer treatment. All impacts have been positive, indicating they have an enduring place in oncology in general.

Even positive studies are, as yet, unable to recommend specific prescriptions for various tumor types, due to marked variances in study design amongst the various trials surveyed. However, the overall benefits of herbal therapy in cancer are no longer in question.

**References**


symptom management and improvement of quality of life in adult cancer patients. 
Complement Ther Med. 17(2):92-120.
Objective: Outline the evidence for the use of several herbs in chickens and which herbs can enhance backyard chicken health and wellbeing.

Introduction

Holistic care of chickens follows the same principles as our regular patients. A natural diet, minimize stress, a healthy environment, clean water and engaged care. These mean a proactive approach to health promotion and prevention of disease.

I am the doting friend of Frizzles, Wyandottes and hybrids, named Sassafras, Poppy, Ginger, Saffron, Daisy, Nutmeg, Cocoa, Vanilla and Nigella, as well as Zac the 43 year old sulphur crested cockatoo. I am not an expert with birds, but I am a willing student of my feathered teachers. They seem to humor me in my attempts to make them the happiest birds I can, enriching their lives and, in the process, mine too.

With increasing concerns about drug residues and antibiotic resistance, a more natural approach to chicken care warrants discussion. This paper explores the herbal medicine approach to enhancing backyard-chicken health and wellbeing.

The Basics

Backyards present bugs, frogs, visiting wild birds, worms and other interesting things to chickens. They also present hazards. These include long grass and foreign objects that can be ingested and cause crop impaction. A backyard can be a major source of molds and toxins by way of compost heaps, fertilizers, potting mixes, plus decaying vegetable and fruit matter in vegetable gardens. The hen yard can be a source of mold-laden pelleted food, decayed table scraps and contaminated grains and seeds. Chickens seem susceptible to toxins because of their curious and insatiable appetite.

Wet and damp weather increases the risk of disease, so grain and grit should be replaced daily to minimize contamination. Chickens need a safe roost and pen, direct sunlight, clean water and a balanced diet of mainly grass, green leafy vegetables and a protein rich diet supplemented with fresh table scraps (or rice vermicelli, fish, flax seeds, coconut, sweet potato, ground nuts in winter, warm oatmeal, lentils, beans, and herbs). Store all dry food in air tight containers. Make sure grass (a favorite food) is mowed and then let the chickens do the
work for you. Chickens need clean soil to bathe in, to roll in, to luxuriate in and clean their feathers. Nothing epitomizes joy and pleasure more than the facial expression (yes, they can look happy) of a chicken having a dirt bath!

Resilient by nature, chickens are however ruled by their emotions and their complex social lives reflect a schoolyard scene. There are bullies, there are peace makers, the shy, the extrovert and dramas abound. Resources are the major source of friction and care needs to be taken that resources are shared. Be aware of chickens whose lives are not happy – move them, set up a new home so they do not let them live in a stressful environment. Provide plenty of room to move, interesting parts of the backyard to explore and spend time with them. I call it chicken therapy.

**Herbs for Backyard Poultry**

Note that there are no drugs approved for birds laying eggs for human consumption in the USA. Any treatments other than organic therapies are off label.

**Echinacea Purpurea, Pallidae:** Echinacea spp possess antibacterial, antiviral and antifungal properties. A glycerine and an aqueous ethanolic extract both exerted immune-enhancing effects in chickens (Ma et al 2009). Zhang (2005) reported that E. purpurea extract (1g/L drinking water) used for 5 days significantly augmented antibody production in chickens that were vaccinated for Newcastle’s disease and infectious bursal disease (IBD). Currier and Miller (2000) showed daily dietary administration of E. purpurea root extract to mice for only one week resulted in a significant increase in natural killer (NK) cells. Boosting of such a fundamental immune cell population suggests a prophylactic role for this herb in chickens.

Other herbal medicinal ingredients have demonstrated the ability to enhance immunity in chickens, including astragalus polysaccharide, Isatis root polysaccharide, propolis polysaccharide and epimedium flavone (Liang et al 1998, Kong et al 2004).

**Calendula Officinalis:** Water extracts are made with 90g fresh cut stems/leaves/flowers immersed in 1L boiled distilled water for 15 minutes, then filtered. The extract is diluted up to 6L with distilled water. The extract had a significant benefit in clearing IBD virus form their Bursa of Fabricus and protecting from atrophy, lesions and necrosis in a study comparing Calendula and Centaurea ainetensis (Barbour et al 2005). The Bursa is the immune organ involved in B cell maturation in chickens; consequently IBD virus causes immunosuppression, leading to poor protection against other pathogens. C. officinalis has the ability to
inhibit replication of human HIV type 1 (Kalvatechev et al 1997). Antiviral effects of calendula have been proposed to be due to calendula polysaccharides stimulating immunity (Wagner 1985).

**Reishi Mushrooms (Ganoderma Lucidum):** Enhance innate immunity in chickens (Lee et al 2010) and is effective against Eimeria tenella (coccidia) infected broilers at 200mg/ml for 7 consecutive days, this compared equally to amprolium standard treatment (Oqbe et al 2009). The reishi mushroom has a significant immune effect, mainly through its polysaccharides and bitter terpenes. The beta glucans provide the polysaccharide energy sources for the phagocytic properties of the NK cells.

**Dichroa Febrifuga:** Has anticoccidial activity and, at 20mg/kg with 2mg diclazuril/kg feed, significantly increased body weight gain and reduced bloody diarrhea and oo-cyst excretion compared to diclazuril alone (Zhang 2012).

**Allium Sativum:** Hens sprayed with 10% garlic juice in water once every 7 days for 3 weeks (compared to water alone) had significantly fewer mites and it was proposed that garlic juice may be an effective way to control mites in chickens (Birrenkott et al 2000). On the other hand, a garlic product with a high level of allicin was used against Ascaridia galli infection in chickens. Chickens were given the recommended dose or a tenfold increase in dose, no significant differences were demonstrated compared to untreated chickens and only the flubendazole (10mg/kg) group resulted in elimination. It was concluded that allicin does not represent an alternative to flubendazole for the treatment of A. galli infections in chickens (Velkers et al 2011). However, garlic powder at the rate 1-1.5g/kg can prevent subclinical necrotic enteritis caused by Clostridium perfringens in chickens (Jimoh et al 2013). 1-3% garlic powder does not appear to have any beneficial effect on humoral response to live Newcastle disease virus vaccine (Jafari et al 2008).

**Azadirachta Indica:** Neem leaf water extract (100mg/kg bw for 9 days) was compared to Baycox in chickens experimentally infected with E. tenella. The efficacy of Baycox was shown to be superior to that of Neem, but an additive histopathological toxic effect besides those produced by E. tenella infection could be recorded with Baycox. In contrast, Neem appeared to have a remarkable improvement on caecal integrity (Toulah et al 2010). Neem has also been evaluated against Northern Flow Mite (O. sylviarum) infestations in laying hens. Neem extract at 2% is effective to control infestations by O. sylviarum and at least 3 sprays of the product are required weekly for an effective control of the parasite.
Sambucus Nigra: Can inhibit infectious bronchitis and viral replication at an early point in infection, probably by rendering the virus non-infectious. It was found to have potential for the prevention and treatment of IBD in chickens (Chen et al 2014). Nigella sativa: seed supplementation of 4% or 5% of the diet significantly increased shell thickness and decreased serum LDL cholesterol and egg yolk cholesterol concentration compared to other groups. In addition, nigella enhanced immunity against Newcastle disease virus (Khan et al 2013). Zingiber officinale: dietary supplementation of ginger powder improved laying performance and serum and egg yolk antioxidant status in a dose-dependent manner. The optimum supplementation rate of ginger powder in the diet of laying hens appeared to be between 10 and 15g/kg of diet (Zhao et al 2011). Ginger extract at 100mg/chicken has some anthelmintic activity against Ascaridia galli, as does curcumin extract at 100mg and a wormicidal effect is concentration dependent (Bazh 2013, El Bahy 2013).

Flaxseed: At 10% of the diet in two studies and fed for 1-4 years to hens, demonstrated a significant reduction in ovarian cancer severity and incidence compared with the control diet-fed hens. Hens are used as a model for ovarian cancer in humans. Concentrations of PGE2 and expression of COX-2 were diminished in ovaries of flaxseed-fed hens (Eilati et al 2013a, Eilati et al 2013b).

Aspalathus Linearis: Rooibos Tea, as a substitution for drinking water or dietary supplementation, was assessed on aging and egg production in quails. Although rooibos treatment did not significantly increase egg production in young hens, the decrease in egg production of rooibos-treated aged hens (360 days of age) was significantly reduced, regardless of the egg production levels (high - 80%, low - 20%) before the treatment. Rooibos tea positively prolonged the productive period of aged animals. Further studies would be needed to address the question whether these effects are due to the antioxidant or phyto-oestrogenic activities of rooibos (Juráni et al 2008).

Ligustrum Lucidum or Schisandra Chinensis: Supplemented at 1% of the diet had beneficial effects on egg production, immune function and antioxidant status of hens during heat stress (Ma et al 2005).

Essential Oils: The toxicity of a range of plant essential oils to the poultry red mite, Dermanyssus gallinae, was assessed. D. gallinae may cause losses in egg production, anaemia and, in extreme cases, death. Fifty plant essential oils were selected for their toxicity to arthropods reported in the literature. Twenty-four of these essential oils
were found to kill >75% of adult \( D. \) gallinae in contact toxicity tests over a 24-hour period at a rate of 0.21mg/cm. Subsequent testing at lower rates showed the essential oils of cade (Juniperus oxycedrus), manuka (Leptospermum scoparium) and thyme were especially toxic to adult \( D. \) gallinae (George et al 2010). In another study, seven essential oils tested (manuka, thyme, palmarosa, caraway, spearmint, black pepper and juniper leaf) were repellent to \( D. \) gallinae at 0.14mg oil/cm (initial concentration) during the first two days of study. Thyme essential oil appeared to be the most effective, where repellence lasted until the end of the study period (13 days) (George et al 2009).

**Fresh Kale Leaves:** Added to chickens’ diets increases egg weight significantly, the shell is stronger and eggs have less sulphur aroma, they also have significantly higher lutein and \( \beta \)-carotene content. Violaxanthin, an orange xanthophyll, tended to be higher in kale and eggs from hens receiving kale (Hammershøj, Steenfeldt 2012). Dietary hemp seed and hempseed oil in hen diets lead to increased omega-3 polyunsaturated fatty acid content and color intensity of egg yolks (Goldberg et al 2012).

**Administration of Herbs:** Herbs can be given to chickens in a number of ways. a) Teas can be diluted in drinking water, however ensure chickens are drinking the water. b) Take dried herbs and form a small ball with water and give by mouth. c) Tinctures can be diluted, 2-5 drops (0.25ml in 1-2ml water) twice daily of a single herb, up to 1ml diluted of a formula. d) Drops can be placed directly into the mouth (but remove alcohol first). e) Dried and fresh herbs can be offered as greens or chopped finely and mixed in feed. Offer dried herbs in the nesting area. Aromatic herbs will be used by the chickens and do not be surprised if they roll in them.

**Growing Herbs for Chickens:** Aromatic herbs can act as insect repellants when grown near the hen house. Wormwood, lavender, lemon balm and rose geranium have proved popular. Scatter seed under the herbs so that chickens brush against them for an insecticidal ‘spray’. They can also be added to straw inside the hen house.

**Coccidiosis:** is a major disease of young chickens that causes bloody diarrhea, sudden depression and increased susceptibility to other diseases such as worms, E. Coli, Marek’s and respiratory disease. There are different forms of Coccidiosis and, conventionally, routine monthly treatment is given to young chickens until they are 6 months old to prevent the disease. Adults can also be susceptible. Boosting immunity or treatment should be considered during an outbreak or when extended periods of rain have caused wet patches to appear in the yard.

**Protocols:** Probiotics, Immune support with Echinacea, reishi mushroom extract, astragalus, garlic, calendula, Ligustrum lucidum or Schisandra chinensis could be considered. With anticoccidial effects, Dichroa febrifuga and Azadirachta indica could be considered in prevention or control and treatment, depending on the severity of infection.
Chronic Respiratory Disease (CRD):
Caused by Mycoplasma gallisepticum. CRD is transmitted via the egg and manifests as eye infection, inflammation around the face and cere, open mouth breathing and gurgling throat sounds. Stage 1 is usually just wetness around the eyes – stress and vitamin A deficiency can also look like this. Eye treatment can clear the infection in 2 days. Stage 2 includes swelling of the orbital sinus causing a donut appearance around the eyes. Doxycycline plus tylosine in the drinking water for 7 days and eye treatment is usually needed. A poor response indicates stress is a major factor. Stage 3 is advanced and signs include red eyes, swollen cere, cheesy eye discharge, pasted eyelids and open gaping mouth. Prognosis is grave.

Protocols: Clean eyes with euphrasia or chamomile tea (filtered). Immune support with Echinacea, reishi mushroom extract, astragalus, garlic, calendula, Ligustrum lucidum or Schisandra chinensis could be considered. Tremella fuciformis extract, astragalus extract and Lentinus edodes extract stimulate beneficial bacteria (bifidobacteria and lactobacilli) in a dose-dependent manner while reducing harmful bacteria (Bacteroides and E. coli). The immune polysaccharides may help modify intestinal microbiota to Mycoplasma gallisepticum (Guo et al 2004). For respiratory signs consider Sambucus nigra, marshmallow, liquorice and other respiratory herbs. Nebulise or steam with thyme tea in a tent.

Infectious Laryngotracheitis (ILT):
is caused by a herpes virus in young and adult chickens, and its spread is slow. Signs include eye symptoms, coughing and gurgling sounds, head shaking, gaping, lethargy, swollen eyelids, watery red conjunctiva, crusty eyes and ocular discharge, open-mouth breathing and stretching the neck out to breath. Coughing up blood is almost characteristic of ILT. It can mimic other respiratory disease such as infectious bronchitis, coryza (this does not cause coughing, gaping or bloody discharges) and aspergillosis. Birds that recover can have no signs and be carriers. Leucosis, with raised skin nodules around feather follicles, should be assumed to be Marek’s disease. Some chickens die without any signs.

Protocols: Sambucus nigra, Echinacea, marshmallow, garlic, honey syrup. Bathe eyes, insides of beaks and nostrils with a thyme tea. Nebulise or steam with thyme or eucalyptus or lemon myrtle tea in a chicken tent (make sure the chicken can see or hear friends).

Marek’s Disease:
This viral infection often follows a cold change and mainly affects young birds. However, those that survive become carriers and, if stressed later in life, they can shed the virus. Signs include lameness, paralysis of legs (one leg forward one behind), wings or neck. The virus causes tumors in the nerves and immunosuppression. Pullets with weakness, pale wattles and combs, poor appetite, diarrhea and are poor ‘doers’ can have Marek’s. Paralysis of the vagus nerve can cause a dilated crop and crop impactions. Signs can mimic respiratory disease with gaping and gasping. Anisocoria and vision impairment, or iris discolouration, is most likely Marek’s. Post mortem reveals nodules of cancer throughout the body. Stress factors can precipitate Marek’s, social stress due to overcrowding, worms, coccidiosis, lice, mites and mixing
young and old birds together, or anything that prevents a chicken from eating or drinking or that prevents the chicken from being happy. There are no conventional cures and vaccination can be used to control the disease.

**Protocols:** Affected birds could be supported with Echinacea, gotu kola, turmeric and cinnamon.

**Crop and Gizzard Impaction:** is life threatening. It can occur with gizzard malfunction, foreign bodies and long fibrous grass. High egg-producing breeds like Isa Browns are susceptible, as pelleted diets do not provide them with enough nutrients to support high egg production and a backyard environment has various hazards which predispose them to impaction problems. First signs are a full doughy crop in the morning, when it should be empty. Immediate treatment is effective. If not treated, there is weight loss and fluid accumulation in the crop and a foul odour from the mouth. The chicken withdraws, closes its eyes and produces a watery vomit. Gizzard malfunction can occur with fluctuating weather conditions (e.g., sudden cold, wet or hot spells) which alter metabolism and alter pH levels in the crop, gizzard and cloaca. The increased alkalinity affects motility, electrolytes, microbiota and gut inflammation. The chicken may have pica and target clays, charcoal and rocks, brick pieces etc. These foreign bodies contribute to impaction. The ingestion of contaminated food (decaying table scraps etc) is another cause of impaction. Mouldy maize, grains and cereal grains contaminated with fumonisins moulds can cause problems in backyard chickens. These include: liver and bone disease; proventriculus and gizzard malfunction; as well as egg peritonitis and with egg laying.

**Protocols:** Immediate treatment. Crop needle or dropper 2-3ml olive oil into the mouth and gently massage the crop to break down the impaction and repeat the same day. Feed mash and yoghurt to soften the impaction and neutralise pH and bacteria. An alternative mix is olive oil, milk and gentian powder (1/4 teaspoon) given twice. Probiotics can also be added. Those containing lactobacillus help prevent aflatoxin absorption from the small intestine (Nikbakht et al 2013).

Emergency treatment is 20-30ml warmed saline into the crop to flush and empty it. Repeat three times daily for 2-3 days if necessary. Heat, milk thistle seeds and antibiotics may be necessary. Endoscopic or surgical removal of contents may be necessary.

**Egg Binding:** Can be caused by aflatoxins, dietary deficiencies, infections, inflammation of the oviduct related to viral infection, cold weather, laying out of season, or a large egg etc, that weaken the vaginal muscles and prevent the egg from being laid. The chicken is lethargic, the abdomen is distended and there is a swollen and pasted vent. The symptoms mimic egg peritonitis, uterine infection, cystic ovary, ectopic eggs and ascites from liver or heart failure.

**Protocols:** Emergency treatment involves 50ml heated fluids and liquid calcium into the crop. Heat the bird to 30oC for 10 minutes. Use a lubricant if necessary, however this protocol should help restore vaginal function. Firm digital pressure can then be
used. Repeated administration of fluids and calcium may be needed if egg binding is long standing. Antibiotics are usually recommended. Ginger powder or grated ginger in tea can be given into the crop for its thermogenic properties.

**Heat Stress:** Climate change will increase the risk of heat stress (Frizzles are well adapted to heat). Prevention – feed the chickens early in the morning and remove food so they do not eat for 6 hours before the hottest part of the day as digestion increases body heat. Avoid overcrowding. If temperatures are forecast above 35°C, add 20ml apple cider vinegar and a pinch of Celtic sea salt into 2L drinking water. Apple cider is high in potassium which is lost in heat stress and the potassium increases thirst. If the temperature is expected to reach 40°C, add 5 teaspoons of bicarbonate of soda into the same water to help counter heat-induced acidosis. Mist spray the chickens.

**Protocols:** immediate treatment if the chicken looks stressed – panting, holding wings out from the body, with increased thirst, reduced food intake and inactivity. Remove food and grit. Use sea salt (pinch), apple cider vinegar (20ml) and bicarbonate of soda (5 teaspoons) into 2L drinking water. Mist spray the birds.

**Mite Infestations:** treatment is directed at killing the mites and supporting a full recovery by supplementing the diet with nutritional additives. Conventionally ivermectin is used. Herbal options include aqueous garlic, neem and thyme essential oil.

**Conclusion**

Ideally, organic and chemical-free produce is desired. Herbal medicines offer adjunctive and alternative options and, increasingly, research supports their use. In many cases however, herbs do not replace the need for conventional diagnosis and treatment.

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Herb Monograph
An Integrative View of Codonopsis: Traditional Uses and Modern Potentials
Jennifer C Kareklas DVM

Historical Overview: Dang Shen is the Pinyin name for the root of Codonopsis pilosula, an important medicinal herb in Traditional Chinese Medicine (TCM). Its nature is sweet and neutral and it enters the Spleen and Lung channels. It should be used cautiously in patients with excess heat. It is a mild, but highly therapeutic, Qi tonic. Dang Shen is generally considered safe; however large doses may cause cardiac arrhythmias or discomfort. It is incompatible with Li Lu (Veratrum nigrum) (Chen, Chen and Crampton 2012 p 843).

Traditionally, the therapeutic actions of Dang Shen are as follows: tonifies Qi, strengthens Middle Jiao, tonifies Lung, nourishes Blood, promotes production of Body Fluids, restores Constitution and expels Pathogenic Factors. Clinical indications include Zhong Qi deficiency, organ prolapse, constipation, Lung Qi deficiency, Blood deficiency, Body Fluid deficiencies, as well as respiratory infections in the face of constitutional deficiencies (Chen et al 2012 pp 843-4).

Modern Research: In the past five years there are 84 listed publications on PubMed which describe the medicinal potential of plants in the Codonopsis genus. The recent research focus has been largely on the neuroprotective, immunomodulatory and anti-obesity effects of a related species, Codonopsis lanceolata (47 listed studies). Nevertheless, 37 investigations of Dang Shen, C. pilosula, have yielded potential anti-tumor, hematopoietic, immunomodulatory functions – and more (National Center for Biotechnology Information 2014).

Several recent studies focused on evaluating medicinal herb samples of C. pilosula for quality (He, Ma et al 2014), herb authentication (Kim et al 2014; Lin, Tsai and Kuo 2013) and potentially hepatotoxic pyrrolizidine alkaloid content (He, Zhu et al 2014; Wakana, Kawahara and Goda 2013; Gilbert et al 2014). One recent study evaluated C. pilosula for anti-fatigue benefits, however the abstract is not available in English online at this time (Xia et al 2014).

Of the available recent research, most studies focused on cancer-related topics. Several investigate the remarkable anti-tumor effects of the herb (Yang et al 2013; Huo et al 2013; Xin et al 2012). The latter study also demonstrates suppression of metastasis. In addition to controlling cancer itself, there is a study demonstrating the hematopoietic effects of Dang Shen administration in mice after radiation and chemotherapy treatments (Liu et al 2014).

Immunomodulatory studies include the use of Dang Shen for treatment of experimentally induced peritoneal sepsis in mice (Zheng et al 2014) and a comparison of the
immune enhancing polysaccharides in C. pilosula and Tremella (Zhao et al 2013). A mouse study documents protective effects against renal ishchemia and reperfusion injury (Li et al 2012). A further study shows neuroregenerative effects of Dang Shen, specifically proliferative and migratory effects on Schwann cells (Chen et al 2010).

The demonstrated capacity of this herb to modulate immune function and enhance the body’s ability to adapt to stressors correlates well with the traditional Chinese categorization of a Qi tonic which strengthens deficiencies and helps expel pathogens.

Potential Veterinary Indications: There are veterinary uses suggested by both TCM and modern research. These include immune support for chronically deficient patients, anemia and geriatric constipation cases. Additionally, the demonstrated immunomodulatory effects suggest that the traditional usage of Dang Shen for Lung Qi deficiency and respiratory infections/abscesses may be appropriate even though research has not focused on the respiratory system.

Modern research reaches beyond traditional indications as well. One promising study suggests Dang Shen may have application for nerve regeneration, which could be appropriate for traumatic paralysis and/or neurodegenerative diseases. Hopefully, potential uses for renal ischemia and reperfusion injury will be investigated further. Modern research confirms repeatedly the anti-tumor effects of C. pilosula, suggesting it can be a good choice in treatment of some cancer patients (herbal anti-tumor protocols, palliative care or supportive care for conventional treatment).

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Case Report
Herbal Therapy to Treat a Case of Moderate Osteoarthritis and Pain in a Dog
Jason Rowan DVM

Abstract: A combination herbal tincture formula was used in conjunction with oral nutraceuticals to treat a case of moderate osteoarthritis and pain in a Staffordshire Terrier. The formula helped with mobility and activity levels and was used to overcome an acute episode of pain after a strenuous exercise.

Case history and clinical signs: an 8 year old, 17 kg spayed female Staffordshire Terrier was presented with mild to moderate lameness. The owner had noted a slow deterioration of gait and some signs of pain. The dog was shaking in the hind end at times while standing. She was beginning to miss jumps or to take several attempts to jump up on the bed. She was not striding as long on her gait at a run and she preferred the left lead to the right lead. She did not run like she used to and her left hind leg had more of a short stride than the right hind.

When the dog was five months of age, she had lameness in the left foreleg that transferred to the right hind, then the left hind leg. The lameness responded to homeopathy and chiropractic adjustments at the time. The breeder reported some cases of osteochondrodystrophy (OCD) in the line. The dog was spayed later than usual, at four years of age as the owner had intended to breed her. Spaying occurred at that age because a larger German Shepherd dog had attempted to mount her while she was being watched by another caregiver. One day after, the dog came home with paralysis of the hind end and an acute case of intervertebral disc disease (IVDD). Radiographs showed a possible fracture at T6-T8, or a congenital malformation or hemi-vertebrae. A short course of prednisone was given. The disc resolved with a combination of rest, chiropractic treatment and homeopathy.

Physical exam revealed a decreased range of motion in both front shoulders. She had tight muscles in the mid lumbar back. In the area of T6-T8 there is a prominence where the previous vertebral malformation was noted. She has a large medial buttress in the left hind stifle and decreased range of motion in that joint.

Treatment: The dog is being fed a raw diet of 80% chicken or beef with 20% vegetables. She is fed kibble on a short-term basis which is usually a low- or no-grain formula. She had been on a glucosamine/MSM/vitamin combination in the past (Recovery SA, Purica, Canada) but recently this supplement had been stopped. She receives 2g fish oil/day. A simple turmeric herbal supplement had been given in the past. This formula had negative side effects. The owner described the dog as appearing ‘hot’ and her behaviour had changed. She was hyperactive and had become lost while off lead in the park.

The goals of the herbal formula were to provide anti-inflammatory benefits and pain control while avoiding the negative side effects such as those found with turmeric. She was placed on a herbal formula of Salix alba, Harpagophytum, Hypericum perforatum and Withania somnifera.
**Herbal Formula:** The dog was placed on the following herbal formula tincture after initial examination. Dose was 3ml BID with food.

<table>
<thead>
<tr>
<th>Herbal Name</th>
<th>Dilution</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salix alba bark</td>
<td>1:3</td>
<td>25ml</td>
</tr>
<tr>
<td>Harpagrophytum procumbens</td>
<td>1:3</td>
<td>25ml</td>
</tr>
<tr>
<td>Hypericum perforatum</td>
<td>1:3</td>
<td>25ml</td>
</tr>
<tr>
<td>Withania somnifera</td>
<td>1:3</td>
<td>50ml</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>125ml</strong></td>
</tr>
</tbody>
</table>

After two months of therapy, the formula was modified to the following dosed at 2ml BID with food.

<table>
<thead>
<tr>
<th>Herbal Name</th>
<th>Dilution</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zingiber officinale</td>
<td>1:3</td>
<td>25ml</td>
</tr>
<tr>
<td>Harpagrophytum procumbens</td>
<td>1:3</td>
<td>25ml</td>
</tr>
<tr>
<td>Hypericum perforatum</td>
<td>1:3</td>
<td>25ml</td>
</tr>
<tr>
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<td>1:3</td>
<td>50ml</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>125ml</strong></td>
</tr>
</tbody>
</table>

**WHITE WILLOW**  
*(Salix Alba)*

**Family:** Salicaceae  
**Parts used:** bark  
**Energetics:** cool, dry and bitter  
**Actions:** anti-inflammatory, anti-rheumatic, analgesic, anti-pyretic, astringent  
**Indications:** headaches, fever, rheumatism, arthritis  
**Contraindications:** gastric ulceration, gastrointestinal disorders, renal disease, liver disease, bleeding disorders, do not use in cats  
**Potential interactions:** avoid concurrent use with other salicylates or NSAIDS, methotrexate, metoclopramide, anticoagulants  
**Mechanism of action:** the plant contains salicylates and tannins. The salicylates work through inhibition of prostaglandin synthesis and reduction of inflammatory pathways. Salicylates also inhibit oxidative phosphorylation and Krebs cycle enzymes.  
**Dose:** (human) 6ml TID. 10-20mg/kg BID-TID

**DEVIL’S CLAW**  
*(Harpagrophytum Procumbens)*

**Family:** Pedaliaceae  
**Parts used:** secondary storage roots  
**Energetics:** bitter, cool  
**Actions:** bitter tonic, anti-inflammatory,
anti-rheumatic, analgesic
Indications: arthritis, rheumatism, digestive upsets, anorexia, pyrexia, inflammatory conditions, menstrual and labour pain, liver congestion and gall bladder ailments, analgesia
Contraindications: gastric ulceration. Given the herb is a bitter digestive, there is potential to increase gastric acid secretion and potentiate the problem
Potential interactions: theoretically with antiarrhythmics, anticoagulants, antihypertensives and cardiac drugs. No reported clinical interactions have been published.

Mechanism of action: the main constituent is harpagoside which has been studied in human medicine and compared to rofecoxib. It was shown to reduce pain scores similar to the COX-2 selective inhibitor. The mechanism of action of the herb is not completely understood and it is thought to be a sum of the plant’s parts as opposed to just harpagosides. One study showed it suppressed prostaglandin synthesis and nitric oxide production in vitro.

Dose: 1:3 with 1-2.5ml/10kg divided daily

ST JOHN’S WORT
(Hypericum Perforatum)

Family: Clusiaceae
Parts used: flowering tops or aerial parts
Energetics: bitter, cool
Actions: nervine tonic, anti-inflammatory, antidepressant, vulnerary, anti-viral
Indications: peripheral neuropathy, depression especially associated with pain, anxiety, obsessive-compulsive disorders
Contraindications: none known
Potential interactions: antidepressants, anticoagulants, immune-suppressives, antineoplastic agents, theophylline

Mechanism of action: inhibition of reuptake of neurotransmitters and action on dopamine and opioid receptors

Dose: 1:2 or 1:3 with 0.5-1.5ml/10kg divided daily.

ASHWAGANDHA
(Withania Somnifera)

Family: Solanaceae
Parts used: root, leaf and whole plant
Energetics: warm, pungent, and sweet
Actions: a panacea of actions. It is considered antioxidant, immunomodulatory, a hematopoietic, chemoprotective, thyroid stimulating, cardiopulmonary tonic, nervous system calming, cognitive enhancer, antitumor and anti-inflammatory.
Indications: general debility, osteoarthritis, cognitive dysfunction, chemotherapy or long-term prednisone usage, anemia, hypothyroidism, hypertension, chronic disease (especially if inflammatory).
Contraindications: pregnancy
Potential interactions: sedatives or anxiolytics

Mechanism of action: with respect to its
anti-inflammatory properties, Ashwagandha has COX inhibition.

**Dose:** 1:2 or 1:3 with 1.0-2.5ml/10kg divided daily.

**GINGER**  
*(Zingiber Officinale)*

**Family:** Zingiberaceae  
**Parts used:** Rhizome  
**Energetics:** hot, dry  
**Actions:** diaphoretic, carminative, anti-inflammatory, antiplatelet, antispasmodic  
**Indications:** nausea, flatulence, arthritis, and poor peripheral circulation  
**Contraindications:** gallstones, decreased coagulation  
**Potential interactions:** anticoagulants  

**Mechanism of action:** ginger increases gastric motility and promotes absorption of toxins and acids. Ginger root extract has been shown to have effects on the nitric oxide and prostaglandin E2 which may account for its role as an anti-inflammatory.

**Dose:** 1:2 or 1:3 with 0.25-0.5ml divided daily.
Research Abstract

Common Herbal Medications can Affect Bioavailability of Viagra


This study suggests that the bioavailability of Sildenafil (Viagra), used to treat erectile dysfunction and pulmonary arterial hypertension, may be adversely compromised by concurrent use of several common herbal treatments. These are:

- Nigella sativa (black cumin seeds), traditionally used in herbal medicine all over the world for the treatment and prevention of a number of diseases and conditions that include asthma, diarrhoea and dyslipidaemia, and shown to have anti-inflammatory, analgesic, antipyretic, antimicrobial and antineoplastic activity (Ali & Blunden, 2003)

- Lepidium sativum (cress), whose seeds are used traditionally in Indian medicine as a bitter, thermogenic, depurative, rubefacient, galactogogue, tonic, aphrodisiac, ophthalmic, antiscorbutic, antimicrobial and antineoplastic activity (Ali & Blunden, 2003)

- Trigonella foenum-graecum (fenugreek), known for its hypoglycaemic effects (Khosla et al, 1995).

These common herbal medicines were thought to negatively impact the bioavailability of Viagra.

References


Scutellaria Baicalensis Georgi a Potent Chemotherapeutic Agent Against Hepatocellular Carcinoma


The ground root of Scutellaria baicalensis Georgi (skullcaps) is used in many Asian medicines, including the Chinese Herbal formula Xiao Chai Hu Tang. The current research focused on the anti-metastatic effects of this herb with results indicating that it inhibited the proliferation of hepatocellular carcinoma cells and decreased metastasis. Scutellaria baicalensis Georgi potentially inhibited proliferation of HepG2 cells, dose dependently, and decreased metastasis through the regulation of matrix metalloproteinase 2 (MMP-2) and FOXM1 activities at the transcription and translation levels.

Motherwort Proposed as a Cardio-Protective Agent

Bernatoniene J, Kopustinskiene DM, Jaktas V, Majiene D, Baniene R, Kuršvietiene L,
Leonurus cardiaca, motherwort, is used as a complimentary medicine to improve heart function and blood circulation. It is antibacterial, antioxidant, anti-inflammatory and analgesic. This study showed that motherwort had a marked effect on the processes within the mitochondria which would support its efficacy as a cardio-protector.

The constituents (chlorogenic acid, orientin, quercetin, hyperoside, and rutin) of L. cardiaca herb extract uncouple mitochondrial oxidation from phosphorylation, partially inhibit the mitochondrial respiratory chain in cases of pyruvate and malate as well as succinate oxidation, and effectively attenuate the generation of free radicals in mitochondria, processes which are considered as being cardio-protective.

Chinese Rhubarb Not Found to Effect Progression in Naturally Occurring Kidney Disease in Cats


Rheum officinale, Chinese Rhubarb, had shown anti-fibrotic properties, in part through the inhibition of TGF-β, and had slowed the progression of kidney disease in rat models. In this study with naturally occurring feline kidney disease a randomised, positive-control study was performed to compare the progression of kidney disease in groups treated with Chinese rhubarb or benazepril or both. However, results obtained showed no significant differences in serum creatinine concentration, body weight, haematocrit, UPC and systemic arterial pressure over time between or within treatment groups.

Oral Herbal Tincture Appears to Facilitate Expulsion of Retained Placenta and Improves Fertility


Retained placenta is a major therapeutic challenge in cattle and the aim of the present study was to evaluate the efficacy of an herbal tincture, extracted from Herba Leonuri (Motherwort), Angelicae Sinensis Radix (Angelica root), Flos Carthami (Safflower), Myrrha (Myrrh) and Rhizoma Cyperi (Nutgrass or Flatsedge root), as a treatment. Two treatment groups had cows with retained placenta randomly allocated with Group A receiving the oral tincture and Group B receiving intrauterine oxytetracycline infusion. Group C was a control group with no retained placenta diagnosed. In Group A, 73% of cows had passed the retained placenta within 72 hours compared with zero expulsion in Group B. Furthermore the median day to first service and the median number of days that cows were open was lower in Group A than Group B. The percentage of cows pregnant at 100 days postpartum was highest in Group A – greater
than both Group B and the cows in Group C that had not been diagnosed with retained placenta.

The results strongly suggest that the herbal tincture assisted in the expulsion of the retained placenta and also improved subsequent fertility.

**Sheng Hua Tang Effective as Preventative Therapy for Post-Partum Dairy Cows**


A classical Chinese herbal formula, Sheng Hua Tang, consisting of *Angelicae sinensis Radix* (Angelica root), *Ligustici rhizome* (Chinese Lovage root or Ligusticum root), *Semen persicae* (peach kernel), *Zingiberis rhizome* (ginger), and *Radix glycyrrhizae* (licorice), is known to be beneficial in alleviating postpartum diseases and facilitating a return to normal reproductive function. This study investigated whether the administration of Sheng Hua Tang within 2 to 4 hours after delivery was effective as a preventive treatment for reducing the risk of retained placenta in Holstein dairy cows. The cows were randomly allocated to a treatment and non-treatment group, with the treatment group receiving a daily dose of the herb (0.36g/kg bodyweight) for 3 consecutive days. Controls were untreated.

The treated group had a significantly lower rate of retained placenta, a shorter calving-to-first-service interval, a shorter calving-to-conception interval and fewer services per conception. There were a statistically significant difference in pregnancy rate at 180 days post-partum, with the treated group higher. While further study is needed, this study clearly suggested that Sheng Hua Tang had benefits in dairy cows and may be useful as a general preventative treatment strategy.

**TENS Improves Blood Flow to Organs and Reduces Apoptosis**


Transcutaneous electrical nerve stimulation (TENS) is commonly used in clinical practice for alleviating pains and physiological disorders and it has been reported that TENS could counteract ischemic injury in some vital organs. The current research tested this hypothesis by inducing hypotension and measuring the reduced blood perfusion to organs to groups, one being treated with TENS.

The group having TENS treatment showed a significantly higher perfusion to the stomach and liver than the control group. Following the restoration of normal pressure, hepatic blood flow increased rapidly in both groups but gastric blood flow remained low in the non-TENS group and after 72 hours the non-TENS group showed signs associated with apoptosis in stomach and kidney tissue.

Conclusions suggest that TENS is able to improve blood flow to the liver and stom-
ach and reduce apoptosis in the stomach and kidney.

**Dietary Nettle Improves Hemato - Biochemical Parameters and Immune Function of Juvenile Fish**


The present study investigated the effects of different dietary nettle (Urtica dioica) levels on biochemical, hematological and immunological parameters in fish (Huso huso). Four groups were fed for 8 weeks with 0%, 3%, 6% and 12% of nettle and blood samples collected on week 4 and 8. At 4 weeks, the total red blood cell (RBC) and hematocrit (Ht) showed a significant increase in 12% nettle group compared to the 3% nettle and control groups, but haemoglobin (Hb) had a significant change in 12% nettle compared to the control. After 8 weeks, the fish treated with nettle exhibited significant increases in neutrophil and Hb levels compared to the control and between treatment groups, with the 12% nettle group showing the highest Hb, while RBC and Ht values significantly rose in fish fed 12% nettle compared to the control.

Supplementing with 6% and 12% nettle increased the total white blood cells (WBC) and mean cell haemoglobin concentration (MCHC) compared to the other groups. The group fed 12% showed a highly significant difference in respiratory burst activity (RB), total immunoglobulin (Ig) and total protein (TP) after 8 weeks. However, triglycerides and cholesterol were significantly decreased in the juvenile fish fed with the 6% and 12% nettle diet compared to the other groups. The results suggest that by using this herb there will be an improvement in hematobiochemical parameters and immune function of juvenile fish (Huso huso).
About the Journal of Integrative Veterinary Therapies

The Journal of Integrative Veterinary Therapies (JIVT) is the first international veterinary publication addressing evidence based natural medicine for animals.

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- An abstract of the article, of no more than 200 words should be included.

- A brief author’s profile should be included.

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- All graphs, tables and pictures not in Word form must be included as .tif or .jpeg quality files.

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