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Plant Extracts

Carnivora: Pharmacology and Clinical Efficacy of a Most Diverse Natural Plant Extract

(Explore Issue: Volume 10, Number 6)

Helmut Keller, M.D.

Carnivora, a patented phytonutrient and extract of the venus flytrap plant, Dionaea muscipula, has been used clinically for over 25 years.* Biologically active compounds in the extract are essential to healthy immune systems and support healthy cardiovascular functions in the body. At higher doses, the extract has been shown to have immodulatory, tumorcidal, antimicrobial, antiviral, antiparasitic and antibiotic properties.

I first discovered the venus flytrap plant in 1973 while traveling through Maine to spend a vacation with my family. I had just completed a one-year internship at the Schlossberg Cancer Hospital, which is linked to the University of Munich. While there I had the opportunity to treat patients with many forms of conventional chemotherapy and radiation, but was appalled by the horrific side effects I witnessed. On my way through Maine, I stopped at a flower shop where I happened to observe a venus flytrap plant capturing insects. I stood fascinated by this process and watched for some time. I recalled my recent experiences at Schlossberg and reasoned that perhaps this plant contained substances that could digest primitive tumor cells and other pathogenic forms.

Now 28 years later, the pharmacology of venus flytrap extract has been extensively studied and evaluated in both animal and human studies. A variety of compounds have been isolated from this phytonutrient by Thin Layer Chromatography, Silica Gel Chromatography and High Pressure Liquid Chromatography. Chemical analyses of these preparations have shown that the naphthoquinones, plumbagin, 3-chloroplumbagin and droserone, as well as hydroplumbagin glucoside are among the main constituents. It takes 350 grams (3/4 lb.) of a whole fresh plant to yield 2.3 mg. of droserone, 286 mg. of plumbagin, 3.6 mg. of 3 - chloroplumbagin and 116 mg. of hydroplumbagin glucoside. Other components include quercetin, amino acids, (arginine, asparagines, threonine, glutamic acid, cysteine, serine and others), bile salts (cholic acid and chenodesoxycholic acid) and formic acid. Interestingly, no active proteases responsible for the digestion of the insects have been isolated from either the fresh plant or lyophilized juice. From this most

eccentric plan t comes an array of constituents that support the body's natural immune system and which have also been shown to be effective therapeutic agents for immune deficient and autoimmune disorders.

KEY COMPONENTS

Droserone:

1, 4-Naphthoquinone derivate; Spasmolytic, cough-blocking, antibiotic properties.

Hydroplumbagin:

Hydroplumbagin-4-O-B-glucopyranoside; Immune modulation, stimulation.

Formic acid:

Mono carbon acid; Antiseptic properties.

Quercetin (Flavonoid):

Quercetin-3-O-galactoside, -3-O-glucoside, -3-O-rutinoside; Via a specific pathway in the human body, these components contribute to the regulation of immune modulation and stimulation, support the circulatory system and maximize the efficiency of heart function.

Myricetin (Flavonoid):

Myricetin-OH; Same properties and actions as Quercetin.

Gallic acid derivates:

Cholic acid, deoxycholic acid and chenodeoxycholic acid; Aid in emulsification of fat by supporting the efficacy of lipases, immune-stimulative action aids chronic conditions.

AMINO ACIDS

Arginine:

(S)-2-amino-5-guanidinopentane acid; Essential in childhood, plays an important role in the uric acid cycle, liver-protective, turns into the homologue of lysine which is essential to mitochondrial function and to the production of creatine and putrescine, the pre-stage of spermine and spermidine which

stabilize the DNA structure in human spermatozoa.

Asparagine:

Aminosuccinamic acid; Amino donator, proteinogen amino acid.

Threonine:

(2S,3R)-2-amino-3-hydroxybutane acid; Essential human nutrient; metabolizes to ketobutyrate and glycine; regulates cholesterol; protein element.

Glutamine:

(S)-2-amino-glutaric acid; Donator of amino groups; detoxifying end product of ammonia metabolism; source of gamma amino-butyrate (neurotransmitter); acceptor molecule of ammonia detoxification.

Alanine:

(S)-2-amino acid; Key function as most important glucogenic amino acid, it is essential to catalyze and block harmful enzymes.

Cysteine:

(R9)-2-amino-3-mercaptopropionic acid; Causes acid urine, source of sulfate; high concentration in the brain; essential for fetus and premature children.

Serine:

(S9)-2-amino-3-hydroxypropionic acid; Glycoproteins; component of immune globulins (antibodies).

Histidine:

(S)-2-amino-3-imidazol-4-yl-propan acid; Metabolizes to histamine.

Proteases:

Enzymes that split proteins and peptides, protein kinases that block protein synthesis.

Lipopolysaccharides:

Originate from biosynthesis of polysaccharides which are bound to lipids; Retinol has similar characteristics.

Phyto hormones:

The source of progesterones and estrogens are tiny immeasurable amounts of steroids in the genuine pressed juice of Dionaea muscipula.

Pharmacologically, the Carnivora constituents plumbagin and hydroplumbagin have been shown to be immunomodulatory versus simply "immune enhancing." In vitro and in vivo stimulation of human lymphocytes and granulocytes in pico and femtogram quantities have been reported in several studies. For example, Kreher, et al. demonstrated that human lymphocytes, incubated together with hydroplumbagin glucoside for 88 hours in picogram quantities (a trillionth of a gram), showed a distinct rise in their proliferative ability (as demonstrated by incorporation of tritiated thymidine.) In studies performed at the KTB Tumor Research Institute at the Institute of Molecular Medicine and Tumor Biology, Freiberg, Germany, Carnivora was shown to selectively attack poorly differentiated cells by inhibiting their mitochondrial ATP synthesis and by interfering with protein kinase production resulting in apoptosis. Carnivora also supports macrophage production and activity and stimulates phagocytosis. In immune monitoring studies conducted by ZYTOGNOST GmbH in Munich, Germany, researchers reported that "the effects of venus flytrap juice could be characterized as immunomodulatory as demonstrated mainly by a decrease of suppressor cells and simultaneous increase in helper cells." Persons treated with Carnivora also show significant increases in natural killer cells as demonstrated in clinical studies performed since the 1970's. This suggests that

Carnivora does not just simply "enhance" the immune system, but is multi-dimensional in its ability to modulate the entire system by increasing the efficiency of the helper: suppressor ratio thereby maintaining a more effective immune response.

Carnivora, Todorov and the Annihilation of Cancer Cells *In Vitro*

Professor D.K. Todorov, M.D., Ph.D, D.Sc., and Chief of Oncopharmacology at the National Oncological Center of Bulgaria has been studying, researching and performing clinical studies on Carnivora for over two decades. He spends a great deal of his time in cancer research at Heidelberg University in Heidelberg, Germany. His more recent findings involving various cell lines show that cancer cells were destroyed within a matter of hours when exposed to Carnivora .

Sarcoma

One of Dr. Todorov's initial studies shows the dramatic reduction of human sarcoma cells from 2500 to 880 over a 72-hour period. Additionally, Todorov found that 400 nanograms per milliliter (ng/ml) of Carnivora had caused a diminution of 2200 multi-drug resistant sarcoma cells to 1130 cells in just 72 hours. As a result of these in vitro findings, I soon began to employ the protocol in vivo, treating patients with sarcoma tumors. Despite previous treatment with toxic therapies, some patients have achieved remission.

Brain Cancer

Professor Todorov performed this study by administering 200 ng/ml of Carnivora to 109 human glioblastoma cells and achieved the destruction of 50% of these cells during a seven-day period.

Leukemia

Again Todorov used 200 ng/ml of Carnivora to

destroy human T-lymphoblastic leukemia cells. Thirty-one hundred of these cells were reduced to 1820 in 72 hours. He then took multi-drug resistant human leukemia cells and exposed them to 200 ng/ml of Carnivora to achieve remarkable results; within 72 hours, 1680 leukemic white blood cells were demolished to just 570 cells from an initial 2250. I have treated patients who suffer from chronic myeloid leukemia, as well as chronic lymphocytic leukemia with long-term Carnivora therapy with great success. The key in this instance is prolonged treatment. I will tell you that a majority of my CML patients and all of my CLL patients are still alive.

Ovarian Cancer Animal and *In Vitro* Studies

Fifteen hundred ovarian cancer cells were dramatically reduced to 435 cells in a rat model in vivo when treated with 200 ng/ml of Carnivora within forty-eight hours. Seventeen hundred eleven cells of human ovarian cancer were again dramatically reduced to a mere 359 cells upon exposure to 200 ng/ml of Carnivora in just 48 hours. It was shown that despite this cancer's chemotherapeutic resistance, Carnivora had nearly destroyed this entire cell line.

Toxicity and Mutagenicity

Toxicity and mutagenicity studies reveal Carnivora to have an LD50 of 1550mg/kg in male Sprague-Dawley rats. This corresponds to 64.8 cc (approx. 2 oz.) of plant juice/kg body weight and is based on the fact that each 1cc of extract provides 24 mg. of dry lyophilized substance. For a 70 kg-person this would translate to the daily administration of over 4500 cc (more than a gallon) of Carnivora to produce a significant toxic effect. Ames testing revealed no mutagenic effects at all doses studied.

Carnivora Administration, Protocol and Application Germany's Experience

Carnivora may be administered by multiple routes, including nebulized forms for bronchogenic disease, p.o. capsules, sublingual drops, subcutaneous injection, intramuscular injection and IV infusion. A typical treatment protocol for advanced disease would include daily IV infusions (preferably six days per week) of 12ml diluted in 250ml of .9% NaCl infused over 4 hours. In many advanced cases, a range of 30ml to 100ml daily is used for IV infusion. This escalated dose is diluted in 500ml of .9% NaCl and infused over 4 hours. For cancer present in the brain, it is essential to use 500ml of 20% Mannitol (for 30ml to 100ml daily administration) as a substitute for Sodium Chloride to allow Carnivora to cross the blood-brain barrier.

The applicable dose will depend on various factors such as the condition of the patient, type of disease and the presence and extent of the administration of previous toxic therapies, i.e., chemotherapy, radiation, etc. For advanced disease and to maintain the presence of Carnivora systemically due to its short lifespan in vivo (approx. 4 hours), it is necessary for the patient to ingest additional Carnivora by either sublingual drops ranging from 120 to 250 drops daily and/or subcutaneous injection of 1ml in the AM and 1ml in the PM. Intramuscular injection of 2ml in the AM and 2ml in the PM may be a substitute for subcutaneous injection. In most cases, the employment of sublingual drops and/or subcutaneous or intramuscular injection is used as adjuvant therapy to maintain a particular level of Carnivora in the bloodstream.

In the instance of earlier stages of disease, both types of injection and sublingual drops may be employed as a primary treatment. It is interesting to note that former President Ronald Reagan used Carnivora drops following his colon surgery. It is recommended that the patient take between six and nine 125 mcg capsules of Carnivora throughout the day in addition to the ingestion of Carnivora extract. A variety of supportive nutrients and procedures

(enzymes, herbs, glandulars, megavitamins, hormones, herb synergy tea, non-chemotherapeutic pharmaceuticals, hyperthermia, etc.) may be part of the protocol. These nutrients and procedures will be covered in future articles.

Finally, Carnivora can be used at lower doses in oral form as a dietary supplement to maintain a healthy immune system. One 125-mcg capsule taken 3 - 4 times daily is considered sufficient to facilitate immune modulatory and enhancing action assuming dietary and lifestyle factors have been addressed. The sterile product is virtually free of endotoxins and pyrogens (less than 1 nanogram per ml).

Carnivora has been used in the treatment of non-oncologic disease since its development in 1973. As monotherapy or combined with conventional therapy, Carnivora has proved beneficial in cases of chronic infectious and other diseases such as Lyme disease, AIDS, hepatitis-C, Crohn's disease (a majority of patients are treated successfully), sexually transmitted diseases, chronic fatigue syndrome, influenza, ulcerative colitis (nearly 100% of patients treated successfully), multiple sclerosis, psoriasis, chronic arthritis and other immune-deficient and autoimmune diseases.

In sum, clinical and laboratory evidence from around the world support the successful use of this natural plant extract for almost 30 years. Its mechanism of action appears to be multi-dimensional: as an immune system modulator and enhancer improving the helper:suppressor ratio, thus increasing the efficiency of the immune system for both preventive use and in the battle against disease. Areas under investigation include a decrease in the mitosis rate of cancer cells. Studies show that enzymes in Carnivora (protein kinases) block the production of tumor cell proteins and other primitive undifferentiated cell proteins. The result is that these primitive cells are starved for nutrients and die off. The final result is apoptosis.

The Institute of Pharmaceutical Biology of the University of Munich has stated that Carnivora stimulates the reticuloendothelial system, which results in activating and increasing the self-defense cells in the human body. Further, Carnivora decreases the ATP content in cells by depleting the energy of malignant cells and foreign organisms, causing them to weaken over a relatively short period of time. It also appears to be a broad-spectrum anti-viral/antimicrobial agent against gram positive and gram-negative microorganisms, bacteria, viruses, pathogenic fungi, protozoa, trichomonas, chlamydia, spirochetes, borrelia and syphilis - as well as human pathogenic worms. Evidence suggests that it enhances the action of natural antibiotics produced by the body by reducing the number of antibiotic-resistant bacteria and thus is effective in the treatment of diseases such as tuberculosis, candidiasis, botulism, leishmaniasis, and aspergillosis. In addition, using Carnivora I have successfully treated patients with a variety of cancers.

Carnivora also possesses cardiotonic action, as well as anti-anaphylactic action as a result of its Quercetin content. It has been reported as reducing the risk of heart attack, stroke, embolism, angina and potential sudden death syndrome through anti-coagulant activity. Additionally, Carnivora is being studied for its effect on infections caused by RNA viruses including influenza, hepatitis C, herpes and HIV. The results of Carnivora on HIV, documented by the Diagen Institute of Molecular Biology in Düsseldorf, Germany will be reported in future articles.

Taking Decisive Action

One cannot place enough emphasis on a most important issue. The patient must be treated as early as possible. I have treated many thousands of patients since the early 1970's, and I can tell you that many of them come to see me after they have been ravaged physically, emotionally and spiritually

by various toxic combinations of chemotherapeutic agents and/or radiation. This is most disheartening. I implore any of those patients stricken with a life-threatening disease - or any autoimmune disorder that requires attention - to come and see us as early as possible. Remissions of cancers occur in a majority of patients who come to seek treatment in the early stages of disease. These patients have not chosen toxic therapies prior to their treatment. As one would expect, the percentage of success begins to decline as the disease progresses and is not treated properly. A majority of those patients who have chosen toxic therapies are in poor condition, and have greater difficulty in improving their conditions.

Current estimates are that approximately 90% of cancer in the United States is environmentally induced. Clearly, smoking, dietary choices, sun exposure and occupational chemicals are among the most significant of these factors. In addition, electromagnetic smog, emotional stress and a sedentary lifestyle contribute to the onset of disease. It is up to all of us to make informed choices through proper education in order to take preventive measures. And equally important, it is up to each individual who is afflicted with life-threatening disease to take decisive action as early as possible.

A Letter From Mr. Volker R. (reprinted with permission)

Dear Dr. Keller:

In brief, I will try to describe the course of my illness in a few sentences as follows:

January 1983:

Diagnosis malignant melanoma (stage 4 - 5) after having removed a liver spot. Surgery on January 13, 1983 at the university hospital in Erlangen

[Germany]. Discharge after approx. 14 days for a further treatment at the hospital in Coburg.

April 1983:

First metastasis in the left armpit and the right inside of my elbow. After an out-patient removal of the cancer, chemotherapy had been planned for a few days later. 1 week chemotherapy in the Coburg hospital with "Daecarbazin". I terminated the second therapy after approx. 4 weeks according to my intention. According to the doctors, my life expectancy was approx.7 - 8 months (at the most).

May-June 83:

Turning to another type of nutrition, physical fitness, thymus preparations, treatment with ozone and a positive life attitude. But all of this was not sufficient. There were again new metastases.

August 1983:

I got to know Dr. Keller. From that time on, it was clear to me that if somebody could help me, it could only be Dr. Keller. Without knowing the preparation "Carnivora", I decided on this treatment. Dr. Keller did not only treat me with Carnivora, he additionally gave me self-confidence and the courage to fight. As from August 1983 Carnivora became a daily routine. Drops, injections, infusions. After 3 - 4 injections which were given directly in the metastasis, they already became smaller and smaller and disappeared. With every day the closeness to Dr. Keller has grown and the confidence in Carnivora as well. A combination has been found, which made my life again worth living. Until 1987 I have been treated every day with Carnivora. As there have been no further metastasis during this period of time, the quantity of this remedy has been reduced week by week. During a check-up at the university hospital in Erlangen, they smiled at the results of my treatment. It was regarded as an individual case, a medical wonder...

I had no doubt and will never have any doubt of the treatment. I owe my life to Dr. Keller and Carnivora and I shall be thankful for this for the rest of my life. Contrary to all statements from the schools of medicine, I am still alive after treatment with Carnivora for many years.

July 4, 2001
Volker R., Germany

FOR FURTHER INQUIRY:

For information about Carnivora supplements available in the U.S., contact Richard Jason, President & CEO, Carnivora Research, Inc.

Inquiries for Dr. Keller should be made through the contact information below.

*For our readers in the United States, Carnivora is available as a dietary supplement. Carnivora has not been approved in the United States for therapeutic drug use. Any references to nutritional supplement use have not been evaluated by the Food and Drug Administration and the supplement is not intended to diagnose, treat, cure, or prevent any disease.

E-mail to carnivora2000@yahoo.com or visit www.carnivora.com, the official website of Dr. Helmut Keller.

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