Cat’s Claw: The POA – TOA Controversy and the true benefits of *Uncaria tomentosa*

This Cat’s Claw (*Uncaria tomentosa*) vine has been peeled with the help of a machete. The part lifted from the vine is the bark – the principal part that is used. The outer layer of the bark is scraped to remove tiny insects, fungal growth, etc.

In the last several years, a well known manufacturer has sent out an alarming message: that their Cat’s Claw (*Uncaria tomentosa* species) is the only good Cat’s Claw on the market. The message of this company is: Cat’s Claw unless purchased from our company with its patented modification of the natural cat’s claw molecules is “no good The story goes like this:

1. This company’s Cat’s Claw Extract has been modified at the molecular level (and patented!!) to remove what this company calls TOA’S (tetracyclic alkaloids), which they claim are harmful (toxic) to human beings and virtually negate the benefits of the other oxindole alkaloids (this company calls them POA’S (pentacyclic alkaloids) in the Cat’s Claw.
2. This company also claims that there are actually two different types or sub-species of *Uncaria tomentosa*, one (still unnamed) which is naturally high in the “good” alkaloids (POAs) and low in the “bad” alkaloids (TOAs) and the other sub-species—the familiar type which we all know as *Uncaria tomentosa* which is so toxic with TOAs as to be of little if any benefit.
Yet no independent research has ever confirmed this company’s claims!

Do botanists specialized in Peruvian rainforest plants recognize two sub-species of *Uncaria tomentosa*, one which has high levels of POA and the other high levels of TOA?

The answer is “No.”

Has the research sponsored by this company been verified by other independent researchers with no financial connection to the company making these claims?

The answer is “No.”

What does this company have to say to the native people who have been using their *Uncaria tomentosa* (not modified and patented) for millennia with spectacular healing results?

The results native people were getting were so impressive that researchers became interested in documenting these results and finding the active compounds responsible for these effects.

What does this company have to say to all of the independent university researchers, in Austria, Germany, Italy, Japan, Peru, who have documented significant therapeutic results in water and alcohol extracts both in in-vitro and in-vivo studies?

These researchers have documented very significant therapeutic effects in the use of provided-by-nature, unpatented Cat’s Claw (*Uncaria tomentosa*) bark or root tea and extracts. Are all the independent researchers wrong?

*Verification of correct species, unscrupulous suppliers, and the wrong type of dosage form are the main problems a consumer may encounter.*

A company without adequate species verification may be selling the wrong species.

Two species of cat’s claw exist—*U. tomentosa* and *U. guianensis*—with a similar phytochemical makeup but a different ratio of oxindole alkaloids. The alkaloids that are the most powerful for strengthening the immune system are much less plentiful in the hot tropical lowlands species—the *U. guianensis*. In the last five years, it has become more challenging to harvest *Uncaria tomentosa* which grows at higher altitudes in the “cloud forest” of the rain forest. The ‘easy pickings’ close to roads are gone—either pulled up by the roots (now illegal) or cut back so far that it will take years to become a thick vine again. But there is still plenty of *Uncaria tomentosa* in the cloud forest. It just requires more work to get to it.
Leaves of the *Uncaria tomentosa* vine. The underside of the leaves are hairy – ‘tomentosa’ in Latin. This species of Cat’s Claw grows at 1,000 meters above sea level, the ‘Cloud Forest’ where it is cooler.

**How to correctly identify the species *Uncaria tomentosa***

Some unscrupulous suppliers have been selling the low growing, much easier to harvest, *U. guianensis*, and selling it as *U. tomentosa*. The best verification of species at the time of harvesting is the long hairs on the underside of the leaf—which is why the species is called ‘tomentosa’, which means ‘hairy.’ Once scraped (to remove insects, molds, etc. from the surface) and cut into bark pieces it is virtually impossible to tell the difference on sight and must be chemically analyzed for species verification. The companies who have the most control over their supply and who do laboratory spot checking for chemical composition (level of alkaloids) are the most reliable manufacturers.

**The delivery form of *Uncaria tomentosa* is critically important to getting therapeutic results**

Although researchers around the world are all in agreement that powdered Cat’s Claw Bark in a capsule is almost worthless in its therapeutic value, such capsules continue to be sold. When consumers don’t get therapeutic benefits from these capsules they blame the herb and say “Cat’s Claw is overrated. It’s no good.”

The full benefits of *Uncaria tomentosa* (Cat’s Claw) can be derived from a strong tea or a double extracted (water-alcohol) tincture.

**Scientifically Documented Benefits of Non-patented *Uncaria tomentosa* (Cat’s Claw)**

Following is a summary of the important research findings of the therapeutic benefits of *Uncaria tomentosa* (the whole bark extract not the modified-patented kind), published in peer-reviewed scientific journals by scientists with no financial interests in any company selling Cat’s Claw.

Klaus Keplinger did the first substantive research on *Uncaria tomentosa* in the 1970s and 1980s and discovered the immune system strengthening effects of the oxindole alkaloids found in this species of Cat’s
Claw. His research formed the basis for the approval of *Uncaria tomentosa* as an herbal drug by the government of Austria and Germany.

Other researchers in a number of countries, including Japan, France, Peru, Spain, and Canada confirmed Keplinger’s research findings on the powerful immunostimulating effects of the group of novel oxindole alkaloids found in the vine bark and the root of *Uncaria tomentosa*. This is normally the way scientific research works. When a number of independent investigators come to the same conclusions the research becomes validated and accepted as true and valuable. Thus, at this point, two decades of research involving many academic institutions in different parts of the world continue to confirm the original findings and to find additional mechanisms of action involving the immune system which these oxindole alkaloids provide. What is most interesting is that the company which is now claiming that all *U. tomentosa* is worthless except for their patented version which has been altered, also did their own research and further validated the earlier findings of the university research.

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Cat’s Claw vine (*Uncaria tomentosa*) with leaves stripped away, reveling the characteristic ‘claws’ which gives the plant its name.

**Oxindole Alkaloid Research – Uncaria tomentosa**

Klaus Keplinger’s early research in the 1970s and 1980s led to the filing of four U.S. patents describing extraction procedures for a group of chemicals called oxindole alkaloids, and the immunostimulating actions of these alkaloids, found in cat’s claw.


A number of independent researchers in Spain, France, Japan, Germany and Peru followed Keplinger, many confirming and extending his findings on the immune system-enhancing alkaloids in the vine and root. These studies published from the late 1970s to early 1990s indicated that the whole oxindole alkaloid fraction, whole vine bark and/or root bark extracts, or six individually-tested oxindole alkaloids increased immune function by up to 50% in relatively small amounts.


Independent Canadian researchers at the University of Ottawa found that a whole bark extract produced a strong immune system-strengthening effect in 1999.


Independent Peruvian researchers demonstrated that a whole extract of the bark increased immune function in rats at a dosage of 400 mg/kg.


Recent proprietary extracts of cat’s claw have been shown in published clinical studies (funded by the manufacturers of these extracts) to provide the same immune stimulating benefits as have been documented for almost 20 years.


Claims about the Damaging Effect of TOA Not Confirmed by Independent Researchers

The supplement company which holds a patent on a method to remove TOA from Cat’s Claw claims that as little as 1% TOA content in a cat’s claw extract would diminish its immunostimulant effect by as much as 30%. This research has NOT been confirmed by independent researchers. In the scientific community, research undertaken by any individual or group that is not confirmed by other research groups is not taken seriously by the research community. This company seeks to discount all the definitive, independent research which has been performed on whole oxindole extracts (containing both types of alkaloids) and whole root or vine extracts over decades in Japan, Peru, Germany, Spain, and the U.S. (including the four U.S. patents filed by these same researchers) demonstrating immune stimulant effects.


In addition to its immuno-enhancing activity, other in vitro anticancerous properties have been documented for these alkaloids and other constituents in cat’s claw. Five of the oxindole alkaloids have been clinically documented with in vitro antileukemic properties:


and various root and bark extracts have demonstrated antitumor and antimutagenic properties.


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Italian researchers reported in a 2001 in vitro study that cat’s claw directly inhibited the growth of a human breast cancer cell line by 90%, while another research group reported that it inhibited the binding of estrogens in human breast cancer cells in vitro. | Note: Although in vitro (test tube) studies are significant they do not have nearly as much validity as in vivo studies. To my knowledge, these studies have not been done, for several reasons, including the obvious one that these studies are very expensive and there is no financial incentive for a pharmaceutical company or a university to undertake these studies.


Swedish researchers documented it inhibited the growth of lymphoma and leukemia cells in vitro in 1998.


Keplinger’s noted that cancer patients taking Uncaria tomentosa in conjunction with such traditional cancer therapies as chemotherapy and radiation reported fewer side effects (such as hair loss, weight loss, nausea, secondary infections, and skin problems) than patients not taking Cat’s Claw. Subsequent research has found that cat’s claw can aid in DNA cellular repair and prevent cells from mutating—a possible explanation. Research has also shown that it can help prevent the loss of white blood cells and immune damage caused by many chemotherapy drugs.


Uncaria tomentosa’s anti-inflammatory properties, not dependent on its alkaloids, have also been documented. While plant sterols (beta-sitosterol, stigmasterol, and campesterol) and antioxidant chemicals (catechins and procyanidins) found in Cat’s Claw account for some of these properties, new and novel phytochemicals called quinovic acid glycosides (found in the bark and roots) were documented to be the most potent anti-inflammatory constituents of the plant.


This study and subsequent ones indicated that Cat’s Claw (and, especially, its glycosides) could inhibit inflammation from 46% and up to 89% in various in vivo and in vitro tests.


The results of these studies validate Cat’s Claw’s traditional use for inflammatory conditions, including arthritis, rheumatism, as well as inflammatory stomach and bowel disorders.

It has also been shown clinically to be effective in treating stomach ulcers in an *in vivo* rat study.


Anti-oxidant properties in *U. tomentosa* have been demonstrated in an Argentine study.


Other researchers in 2000 concluded that it is an antioxidant as well as a powerful inhibitor of TNF alpha production. (TNF, or tumor necrosis factor, represents a model for tumor growth driven by an inflammatory cytokine.) In this study the primary mechanism for Cat’s Claw’s anti-inflammatory action was found to be a result of the suppression of this cytokine.


Further confirmation that the anti-inflammatory actions of Cat’s Claw are not attributable to immunostimulating alkaloids is found in Sandoval’s subsequent research.


This same group of anti-inflammatory glycoside chemicals also demonstrated *in vitro* antiviral properties in another earlier study.


The Atkins Clinic in New York City, founded by the late Dr. Robert Atkins, M.D., noted a strong anti-viral effect on the blood of patients and staff as measured by live blood cell microscopy in a 1:1 alcohol-water extract of *Uncaria tomentosa* (manufactured by Whole World Botanicals). (personal communication by Dr. Karen Paris to Viana Muller)
In addition to the immunostimulant alkaloids, Cat’s Claw contains the alkaloids rynchophylline, hirsutine, and mitraphylline, which have demonstrated hypotensive and vasodilating properties.


Rynchophylline also has shown to inhibit platelet aggregation and thrombosis. It may also prevent blood clots in blood vessels and relax the blood vessels of endothelial cells, dilate peripheral blood vessels, lower the heart rate, and lower blood cholesterol.


The Atkins Clinic in New York City, founded by the late Dr. Robert Atkins, M.D., confirmed in their own patients the effectiveness in a 1:1 alcohol-water extract of *Uncaria tomentosa* (manufactured by Whole World Botanicals) in reducing the C-reactive protein level of their coronary patients practically to zero. (personal communication in 2003 by Dr. Karen Paris to Viana Muller)

Some research suggests the *Uncaria tomentosa* may be helpful with Alzheimer’s disease. Researchers indicate that the positive effects noted may be due either to its antioxidant effects and/or to the possible dilation (not confirmed) of peripheral blood vessels in the brain by alkaloids such as rynchophylline.


In clinical practice *Uncaria tomentosa* is being used for: immune disorders, gastritis, diverticulitis, to detoxify the entire intestinal tract, ulcers, leaky bowel syndrome, Crohn’s disease, cancer, arthritis, rheumatism, rheumatic disorders, neuralgias, chronic inflammation of all kinds, and some viral diseases, such as herpes zoster (shingles). Dr. Julian Whitaker, M.D., reports using cat’s claw for its immune-stimulating effects, for cancer, to help prevent strokes and heart attacks, to reduce blood clots, and for diverticulitis and irritable bowel syndrome.

Documented Properties and Actions: Analgesic, anti-inflammatory, antimutagenic, antioxidant, antiproliferative, antitumorous, antiviral, cytoprotective, cytostatic, cytotoxic, depurative, hypotensive, immunostimulant, immunomodulatory.

The most effective preparations are water-alcohol (double extraction) liquid extract or the traditional tea preparation. (If you add lemon juice or vinegar to the decoction when simmering, you will extract more alkaloids and less tannins from the bark. Use about 1/2 teaspoon of lemon juice or vinegar per cup of water. ) Finely ground bark capsules are practically worthless.

Contraindications: Since Cat’s Claw activates and strengthens the immune system, its use is contraindicated before or following any organ or bone marrow transplant or skin graft. Cat’s claw has been documented with antifertility properties when taken in large amounts and is contraindicated in persons seeking to get pregnant , but may not be considered as a reliable contraceptive.

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Since Cat’s Claw contains chemical compounds which can reduce platelet aggregation and thin the blood, consult your physician if you are taking coumadin or other blood thinning drugs. Discontinue use one week to ten days prior to any major surgical procedure.

Two alkaloids in cat’s claw have been documented with hypotensive properties. Persons with low blood pressure or taking antihypertensive drugs should consult their physician and monitor their blood pressure levels while taking Cat’s Claw. Medications may need adjusting.

**People with Digestive issues:** Cat’s claw requires sufficient stomach acid to help break down the tannins and alkaloids during digestion and to aid in absorption. Avoid taking liquid extracts directly by mouth and dilute first in water or acidic juice. Smaller more frequent amounts may be taken by individuals with digestive issues.

**Side effect:** Large dosages of Cat’s Claw (3–4 ml—approximately one tsp. of liquid extract) cause abdominal pain or gastrointestinal problems in some individuals. This is related to the tannin content. The diarrhea or loose stools which occur in a few people tend to be mild and go away with continued use. Discontinue use or reduce dosage if diarrhea persists longer than 3–4 days.

**Drug Interactions:** Due to its immunostimulant effects and possible interference, cat’s claw should not be used with medications intended to suppress the immune system, such as cyclosporin or other medications prescribed following an organ transplant.

**Based upon in vivo rat studies,** cat’s claw may protect against gastrointestinal damage associated with nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen.