

**CAT'S CLAW: A MIRACLE HERB FROM THE RAIN FOREST OF PERU**Rajani Chauhan<sup>1</sup>, Vinod Singh<sup>2</sup>, Himani Bajaj<sup>3</sup>, Seema Bisht Chauhan<sup>4\*</sup>

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<p><b>*For Correspondence:</b> Seema Bisht Chauhan Asstt. Professor al sciences Div. Of Pharmaceutic SGRRITS, Dehradun</p>	<p><b>ABSTRACT</b> Cat's claw is a thick woody vine of Peruvian rain forest. It was ranked as the seventh most popular herb in U.S. sales in 1997. Two species of cat's claw, <i>Uncaria tomentosa</i> and <i>Uncaria guianensis</i>, are of primary interest for use as medicine. The extract of both species of cat's claw contain over 60 different biologically active compounds. Cat's claw is most commonly used for improving symptoms of both osteoarthritis and rheumatoid arthritis. It is also used for various digestive system disorders including inflammation of the large intestine (diverticulitis), inflammation of the lower bowel (colitis), inflammation of the lining of the stomach (gastritis), stomach ulcers, hemorrhoids, and leaky bowel syndrome etc. In this review we were discuss the general description and application of Cat's claw.</p> <p><b>KEY WORDS:</b> Cat's claw, <i>Uncaria tomentosa</i>.</p> <div data-bbox="857 884 1154 1199" data-label="Image"> </div>
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**INTRODUCTION**

**C**at's claw, an herb found in a limited region of the upper Andes in Peru. Common name of cat's claw is derived from the Spanish *uña de gato*, referring to the curved thorns present on the leaf axils. It has been used for thousands of years by diverse tribes from the Amazonian region to treat a myriad of ailments including arthritis, cancer (tumors), gastrointestinal problems (inflammation and ulcers) & rheumatism<sup>1,2</sup>. The Asháninka Indian tribe in central Peru has the longest recorded history of use of the plant. They are also the largest commercial source of cat's claw from Peru today. The claw-like thorns that grow on the plant's stem, can reach up to 100 feet. The root, which can grow to the size of a watermelon. *Uncaria tomentosa*, is most commonly used in the U.S., and *Uncaria guianensis* is typically used in Europe. Although the two species may be similar in their appearance, they do not possess exactly the same active principles. *U. guianensis* contains tetracyclic oxindole alkaloids has been used in South America as a wound healer, a sedative and to treat intestinal ailments, but is not considered as strong a medicine as *U. tomentosa*. Medicine is made from the root and bark. Cat's claw was ranked as the seventh most popular herb in U.S. sales in 1997. It is most commonly used for improving symptoms of both osteoarthritis and rheumatoid arthritis<sup>3</sup>. In traditional medicine of Peru, *una de gato* is categorized as a "warm plant" or, more

accurately, for warm conditions (inflammations) including arthritis, gastritis, asthma and dermal and genito-urinary tract inflammations. It is also used to treat diabetes, cancer, tumors, viral infections, menstrual disorders convalescence and debility. A few tribes also use cat's claw as a remedy for dysentery <sup>4</sup>.

### Description

**Botanical family:** Rubiaceae.

**Genus:** Uncaria

**Species:** tomentosa

**Synonyms:** Uncaria surinamensis, Nauclea aculeata, N. tomentosa, Ourouparia tomentosa

**Other common names:** Life giving vine of Peru,

**Medicinal parts:** The inner bark of the stems and leaves <sup>5,6</sup>.

**Plant description:** A slow-growing, high-climbing, woody vine that can grow to 100 feet in length, taking up to 20 years to reach maturity. Roots can be harvested after three to eight years. Its name derived from hook-like thorns that grow along the vine that resemble the claws of a cat. The part used medicinally is the inner bark of the roots and stems.

### Active constituents

The active components of cat's claw are mainly alkaloids, glycosides (triterpenes and procyanidins), and tannins. Root and bark are the main part of Cat's claw which are used and prepared as an aqueous extract in hot water. Both U. tomentosa and U. guianensis contain approximately 60 different active compounds, some of which have been tested for their possible therapeutic value <sup>6,7,8</sup>. The first report of naturally occurring pyroquinovic acid glycosides known as tomentosides A (1) and B (2), have been isolated from U. Tomentosa. A glucoalkaloid, 3, 4-dehydro-5(S)-5-carboxystrictosidine, also isolated from Uncaria tomentosa <sup>9, 10</sup>. Cat's claw contains ajmalicine, akuammigine, campesterol, catechin, carboxyl alkyl esters, chlorogenic acid, cinchonain, corynantheine, corynoxine, daucosterol, epicatechin, harman, hirsuteine, hirsutine, iso-pteropodine, loganic acid, lyaloside, mitraphylline, oleanolic acid, palmitoleic acid, procyanidins, pteropodine, quinovic acid glycosides, rhynchophylline, rutin, sitosterols, speciophylline, stigmasterol, strictosidines, uncarine A thru F, and vaccenic acid<sup>11</sup>.

### Uses

**Antioxidant effect:** As an antioxidant, it also helps protect cells from damage caused by free radicals. Cat's claw extracts demonstrate powerful antioxidant effects. Laboratory analysis indicates that the antioxidant power of cat's claw exceeds to various other medicinal plants<sup>12</sup>. Research in Argentina reports that cat's claw is an effective antioxidant<sup>13</sup>.

**Anti-inflammatory effect:** The anti-inflammatory effects of cat's claw have proven beneficial in the treatment of arthritis, rheumatism, bursitis and gout. Photochemical called quinovic acid glycosides (found in the bark and roots) were documented to be the most potent anti-inflammatory constituents of the plant <sup>14</sup>. Cat's claw also decreased the experimentally induced release of prostaglandin E2, an inflammatory mediator associated with conditions such as arthritis<sup>15</sup>. A specific cat's claw extract (Uncaria tomentosa) that contains chemicals called pentacyclic oxindole alkaloids appears to improve symptoms of rheumatoid arthritis along with sulfasalazine or hydroxy chloroquine for 24 weeks, cat's claw seems to reduce the number of painful and swollen joints<sup>16</sup>. Mechanism: The active ingredients of a water-soluble Cat's Claw extract known as C-Med-100 can inhibit cell growth without cell death, therefore providing improved opportunities for DNA repair along with immune stimulation, anti-inflammation and possible cancer prevention. The active ingredients were identified as quinic acid esters<sup>17</sup>. A phytochemicals called quinovic acid glycosides were documented to be the most potent anti-inflammatory constituents of the plant <sup>18</sup>.

**Stimulate Immune system:** All individual alkaloids of *U. tomentosa*, except rynchophylline and mitraphylline, have immunostimulant properties<sup>19</sup>. In a study of cat's claw's effects on the immune system of rats, eight weeks of cat's claw supplementation significantly elevated the animals' white blood cell count and in one another study adult men who supplemented with cat's claw for six months likewise experienced an increase in their white blood cell count, indicating enhanced immune function<sup>20</sup>. Cat's claw enhance the efficacy of vaccines. For eg. When taken with vaccine it provide additional protection against the pneumonia virus<sup>21</sup>.

**Effective against Cancer:** cat's claw extract prevented the proliferation of human breast cancer cells in the laboratory<sup>22</sup>. Extracts of *U. guianensis* containing uncarine triterpenes having a cytotoxic effects<sup>23</sup>. A protective effect was demonstrated in vitro against ultraviolet damage of skin cells<sup>24</sup>. Various experimental studies have shown antiproliferative (antimitotic) and apoptotic activity of extracts of *U. Tomentosa*<sup>25, 26</sup>. One study shows the effect of *U. tomentosa* in lung and colon carcinoma<sup>27</sup>. Cat's claw extracts and fractions exert a direct anti proliferative activity on breast cancer cell lines<sup>22</sup>.

**Effect on intestinal permeability:** Cat's claw help patients suffering from many different stomach and bowel disorders including leaky bowel syndrome. Irritable bowel syndrome, Crohn's disease, diverticulitis, haemorrhoids, fistulas, gastritis, ulcers, parasites and intestinal flora imbalance<sup>28,29</sup>. Cat's claw enables the body to better absorb nutrients, thus helping to correct nutritional imbalances created by digestive blockages<sup>29</sup>.

**Anti-microbial effect:** Alkaloidal extracts of *U. tomentosa* have shown in vitro antiviral activity against the vesicular stomatitis virus, rhinovirus, and Dengue virus. *Uncaria tomentosa* showed antimicrobial activity on Enterobacteriaceae, *Streptococcus mutans*, and *Staphylococcus spp*<sup>30</sup>.

**Other uses:** If decoction of cat's claw taken 1 cup daily during the period of menstruation for three consecutive months, causes sterility for three to four years<sup>31</sup>. Animal studies suggested hypotensive, diuretic, and vasorelaxant activity of rynchophylline, mytraphylline, and gambirine<sup>32</sup>.

**Table 1: Active constituents of Cat's Claw & their application:**

S.No.	Active constituent	Application	Reference
1.	Quinic acid esters	anti-inflammation	33
2.	Rynchophylline(alkaloid)	inhibit platelet aggregation and thrombosis	29
3.	isoteropodine or isomer A(alkaloid)	immunologically	30
4.	Krallendorn	anticancer	34
5.	pentacyclic oxindole alkaloids	Antiinflammatory & immunomodulatory properties	35
6.	proanthocyanidins (oligomeric procyanidins)	Antioxidant	36
7.	caffeic acid ( phenolic acids)	antioxidant	36
8.	mytraphylline	Hypotensive	37
9.	beta-sitosterol, stigmasterol,	anti-inflammatory properties	38
10.	campesterol)	anti-inflammatory properties	38
11.	isoptero dine and pterodine(alkaloid)	stimulated phagocytosis in vitro	39
12.	uncarine F (oxindole alkaloids)	anti-tumor effect	40
13.	triterpenoidic saponins	anti-tumor effects	40
14.	hirsutine and hirsuteine	anticonvulsant properties in mice	41
15.	teropodine and isoptero podine	positive modulators of muscarinic receptors	42

### Contraindication of cat's claw

Cat's claw has been clinically documented with immune stimulant effects and is contraindicated in:

**Pregnancy and breast-feeding** Cat's claw has been documented with anti-fertility properties and is contraindicated in persons seeking to get pregnant (this effect however has not been proven to be sufficient to be used as a contraceptive and should not be relied on for such). Cat's claw has been documented with chemicals which can reduce platelet aggregation and thin the blood<sup>43</sup>.

**Hypotension:** Two alkaloids in cat's claw have been documented with hypotensive properties. It's best to monitor blood pressure levels accordingly as medications may need adjusting in some individuals depending on the amount of cat's claw taken. Cat's claw requires sufficient stomach acid to help break down the tannins and alkaloids during digestion and to aid in absorption so it should not take with antacids. Large dosages of cat's claw (3–4 gram dosages at a time) have been reported to cause some abdominal pain or gastrointestinal problems including diarrhoea (due to the tannin content of the vine bark). The diarrhoea or loose stools tend to be mild and go away with continued use. Discontinue use or reduce dosage if diarrhoea persists longer than 3–4 days<sup>44</sup>.

#### Doses of Cat's claw <sup>45</sup>

Doses are given for single herb use and must be adjusted when using herbs in combinations. Doses may also vary according to the type and severity of the condition treated and individual patient conditions. As a tea: 20 – 30 grams finely chopped bark of the root, boiled in one quart of water for three hours until volume is reduced to about one third. Cooled to room temperature and sipped TID.

Capsules containing dried bark: 350 – 500 mg QD or BID

Tincture: 1- 2 ml up to twice daily

Availability of standardized preparations: None

Dosages used in herbal combinations: Variable

Nowadays cat's claw is available in many different forms: dried cut-and-sifted root and stem, powdered root and stem, encapsulated powdered material or lyophilized aqueous extracts, tinctures, tablets and other types extracts. Cat's claw is also available in preparations for external uses (ointments, gels).

#### Conclusion

Cat's claw is used to treat a range of disorders including cancer. It is considered one of the most important botanical in the rainforest. It has been drawing increasingly more interest among the proponents of natural health care. Cat's claw promises to become a major therapeutic agent worldwide in the very near future due to its unusual and significant health-stimulating properties.

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