

**THE COMPLETE GUIDE TO**  
**BOTANICAL WELLNESS**  
**FOR YOUR PET**

12 Healing Herbs · How They Work · Safety Guide

◆ **FOR DOGS & CATS** ◆

A comprehensive resource for pet owners who choose natural, botanical approaches to animal wellness

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# Introduction

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"The art of healing comes from nature, not from the physician." — Paracelsus

## The Power of Botanical Medicine for Pets

For thousands of years — long before the first pharmacy opened its doors — humans relied on the extraordinary chemical complexity of plants to heal themselves and their animals. Herbs were not merely primitive substitutes for "real medicine." They were sophisticated tools, refined through centuries of observation and experience, containing hundreds of bioactive compounds that interact with living systems in nuanced, often remarkable ways.

Today, with the global resurgence of integrative and holistic medicine, we are rediscovering what our ancestors knew. Scientific research is confirming — and often explaining — mechanisms that traditional healers observed empirically. Botanical medicine has moved from the margins back to the center of modern wellness thinking.

## Why Botanicals for Your Pet?

Our companion animals share our biology far more than most people realize. The same inflammatory pathways that cause arthritis pain in humans cause it in dogs. The same GABA receptors that regulate anxiety in people regulate it in cats. The liver enzymes that process toxins in our bodies perform the same function in our pets. This biological kinship means that many of the botanical remedies that support human health can — when properly formulated and dosed — provide genuine, meaningful benefits to our animal companions.

Unlike pharmaceutical drugs, which are typically single molecules targeting single pathways, botanical preparations contain dozens or hundreds of compounds that work synergistically. This complexity often translates to gentler, more balanced effects with a lower risk of the side effects that concern so many pet owners about conventional medications. Botanical supplements are not a replacement for veterinary care — they are a powerful complement to it, supporting the body's own healing intelligence.

## About This Guide

This guide explores twelve of the most important and well-researched botanical herbs for pet wellness. For each herb, you will find a clear explanation of what it does, why it works, which conditions it addresses, and how to use it safely. Whether you are new to botanical medicine or an experienced natural health advocate, we hope this resource deepens your understanding and empowers you to support your pet's wellbeing with confidence and knowledge.

ZoaVet products are formulated with these herbs as liquid botanical extracts — a delivery format that maximizes absorption, allows precise dosing, and makes administration easy for even the most discerning of pets. We invite you to explore the remarkable world of plant medicine, and to discover what generations of healers have known: that nature, when properly understood and respected, is an extraordinary partner in health.

# Chapter 1: How Botanical Herbs Work

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## The Chemistry of Plant Medicine

Every plant is essentially a sophisticated biochemical factory. Plants produce thousands of compounds — collectively called phytochemicals — that serve various functions: defending against insects and pathogens, attracting pollinators, protecting from UV radiation, and competing with neighboring plants. Many of these compounds, by remarkable evolutionary coincidence, interact powerfully with the biological systems of mammals, including our pets.

The key categories of medicinal plant compounds include: flavonoids (powerful antioxidants and anti-inflammatories), terpenes and terpenoids (responsible for most herbal aromas and many medicinal effects), alkaloids (potent physiological modulators), saponins (soap-like compounds with anti-inflammatory and immune-modulating properties), tannins (astringent compounds with antimicrobial effects), and mucilages (soothing, coating polysaccharides). Most medicinal herbs contain compounds from multiple categories, producing multi-layered therapeutic effects.

## Synergy: Why Whole Plants Often Work Better

Pharmaceutical drugs are typically isolated molecules targeting a single receptor or enzyme. Botanical preparations contain scores of compounds that interact with multiple pathways simultaneously. This is called synergy — and it is one of the most important and often misunderstood principles of plant medicine.

In turmeric, for example, the primary anti-inflammatory compound curcumin works alongside ar-turmerone and other compounds that enhance its absorption and stability. In chamomile, apigenin's calming effect is complemented by bisabolol's anti-inflammatory action and mucilaginous compounds that protect the gut. Removing any single compound from the whole-plant preparation typically reduces — sometimes dramatically — the overall therapeutic effect.

## Liquid Botanical Extracts: Optimal Delivery

ZoaVet products are formulated as liquid botanical extracts — a preparation method that offers significant advantages over powders, capsules, and dried herbs. Liquid extracts provide pre-extracted, bioavailable plant compounds that don't require the pet's digestive system to extract them from plant fibers. They allow for precise, easily adjustable dosing. They are rapidly absorbed through the mucous membranes of the mouth and GI tract. They can be easily mixed into food or water for even reluctant pets.

## Working with Your Veterinarian

Botanical supplements work best as part of an integrated approach to your pet's health — alongside appropriate veterinary care, good nutrition, exercise, and preventive medicine. Always inform your

veterinarian about any supplements your pet is taking, particularly if they are on prescription medications, as some botanical compounds can interact with pharmaceuticals. Your veterinarian is your partner in your pet's wellness journey.

## Chapter 2: The 12 Essential Herbs

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The following chapters explore each of the twelve herbs used in ZoaVet's botanical supplement line. Each herb is presented with its traditional uses, modern scientific understanding, specific benefits for pets, and safety information.

Herb 01

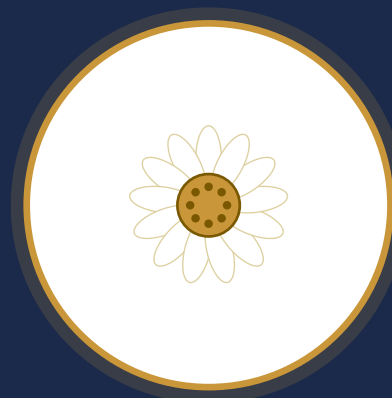
# Chamomile

*Matricaria chamomilla*

## The Gentle Calmer

**Best for:** Dogs and cats experiencing anxiety, digestive upset, travel stress, skin irritation, or general restlessness.

**Active compounds:** Apigenin, bisabolol, chamazulene (azulene), flavonoids, volatile essential oils



Chamomile is one of the oldest and most trusted botanical remedies in the world. Known for its delicate daisy-like flowers and mild apple scent, this remarkable herb has been used for thousands of years to promote relaxation and soothe digestive discomfort in both humans and their animal companions. Today, scientific research confirms what traditional healers have long known: chamomile works on multiple body systems simultaneously, offering gentle yet effective relief.

## Key Benefits

### ◆ Calms Anxiety & Stress

Chamomile contains apigenin, a flavonoid that binds to GABA receptors in the brain, producing a gentle calming effect. It is ideal for pets experiencing situational stress, thunderstorms, travel, or veterinary visits — without causing sedation.

### ◆ Soothes Digestive Upset

The anti-spasmodic properties of chamomile relax the smooth muscle of the digestive tract, relieving gas, bloating, cramping, and general stomach discomfort quickly and effectively.

### ◆ Reduces Inflammation

Bisabolol and azulene — found in chamomile essential oil — are potent anti-inflammatory compounds that help reduce redness, swelling, and irritation both internally and when applied topically to irritated skin.

### ◆ Supports Skin Health

Chamomile's antimicrobial properties help soothe hot spots, minor rashes, and skin irritations. It keeps skin clean while reducing the inflammatory response that causes itching and discomfort.

## How It Works

Chamomile works through multiple mechanisms simultaneously. The flavonoid apigenin modulates GABA-A receptors — the same receptors targeted by anti-anxiety medications — producing a calming effect without addiction risk. Meanwhile, bisabolol and azulene act on inflammatory pathways, reducing

prostaglandins and cytokines that cause pain and swelling. The mucilaginous components also form a gentle protective coating on the gastrointestinal lining, shielding sensitive tissue from irritants.

#### ■ Safety Note

Chamomile is generally considered very safe for most pets. Avoid use in pregnant animals, as it may stimulate uterine contractions. Animals with known allergies to ragweed or other plants in the Asteraceae family should be monitored. Always follow the product's recommended dosage guidelines for liquid botanical preparations.

■ **Did You Know?** Ancient Egyptians dedicated chamomile to the sun god Ra, and dried flowers have been found in ancient burial sites. The name comes from the Greek words "khamai" (on the ground) and "melon" (apple), referring to its low-growing habit and apple-like scent.

Herb 02

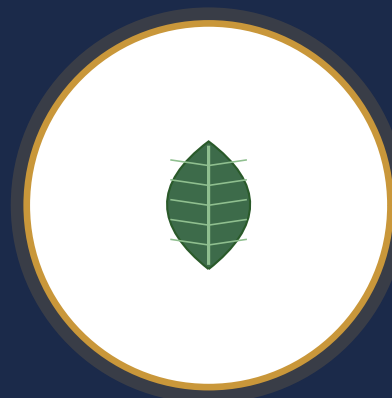
# Slippery Elm

*Ulmus rubra*

## The Gut Guardian

**Best for:** Pets with diarrhea, constipation, IBD, colitis, gastritis, esophagitis, acid reflux, or vomiting.

**Active compounds:** Mucilage polysaccharides, tannins, phytosterols, antioxidants, calcium, magnesium



Slippery Elm bark has been a cornerstone of traditional herbal medicine for centuries. Its inner bark contains a remarkable mucilaginous substance that forms a protective, soothing layer throughout the gastrointestinal tract — making it one of the most effective botanical remedies for digestive complaints in pets. Native American peoples recognized its healing power long before Western medicine caught on, using it as both food and medicine during times of illness.

## Key Benefits

### ◆ Soothes the GI Tract

The thick mucilage produced by slippery elm coats and protects the entire digestive lining, from the esophagus to the intestines, reducing irritation and inflammation along the way.

### ◆ Helps Both Constipation & Diarrhea

As a natural bulk-forming agent, slippery elm absorbs excess water (helping with diarrhea) while also lubricating stool passage (helping with constipation). It is one of the only herbs that normalizes both conditions.

### ◆ Reduces Vomiting

By coating the esophagus and stomach lining, slippery elm can reduce nausea and the urge to vomit, especially when caused by acid reflux, gastritis, or GI irritation.

### ◆ Supports Gut Microbiome

Slippery elm acts as a prebiotic, feeding beneficial bacteria such as *Lactobacillus* and *Bifidobacterium*, supporting a healthy microbial balance that is essential for both digestion and immunity.

## How It Works

When slippery elm contacts water, its mucilage compounds swell to form a thick, gel-like substance. This gel physically coats and protects the mucous membranes of the digestive tract, creating a barrier between irritants and sensitive tissue. The tannins provide mild astringent properties that help reduce inflammation and tighten tissues. The prebiotic fiber preferentially feeds beneficial gut bacteria, improving the microbial

environment over time.

#### ■ Safety Note

Slippery elm is one of the safest botanical remedies available for pets. Because it coats the GI tract, it may slightly delay the absorption of other medications — administer at least 2 hours apart from pharmaceuticals. Avoid use in pregnant animals due to limited safety data during pregnancy.

■ **Did You Know?** Native American tribes used slippery elm bark as a survival food during harsh winters, making a nutritious porridge from ground bark. It was also used as wound poultice and throat soother for centuries. Civil War soldiers reportedly used slippery elm bark to treat gunshot wounds in the field.

Herb 03

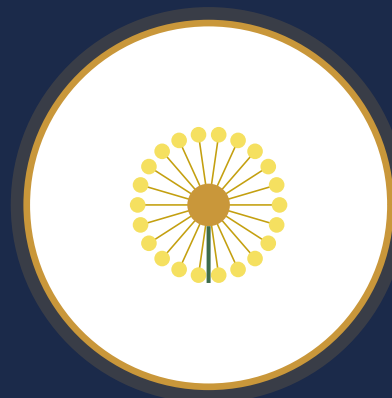
# Dandelion Root

*Taraxacum officinale*

## The Nutrient Powerhouse

**Best for:** Pets needing liver support, those with fluid retention, sluggish digestion, poor appetite, or recovering from illness or prolonged medication use.

**Active compounds:** Taraxacin, taraxacerin, inulin, sesquiterpene lactones, phytosterols, vitamins A/B/C/K, iron, potassium, calcium



Often dismissed as a common weed, dandelion is actually one of the most nutritionally dense and therapeutically versatile plants on Earth. Its roots contain a remarkable array of compounds that support liver function, kidney health, and overall metabolic wellness. Far from being a nuisance in the garden, dandelion is a powerhouse of vitamins, minerals, and plant compounds that can meaningfully improve your pet's health.

## Key Benefits

### ◆ Liver Support & Detoxification

Dandelion root stimulates bile production in the gallbladder and liver, helping to process and eliminate toxins more efficiently. It acts as a gentle yet effective liver tonic appropriate for long-term use.

### ◆ Natural Diuretic Action

Dandelion encourages kidney filtration and urine production, helping flush excess fluids and toxins — uniquely, without depleting potassium as pharmaceutical diuretics frequently do.

### ◆ Rich in Vitamins & Minerals

Dandelion root contains vitamins A, B, C, and K, along with calcium, iron, potassium, and zinc — providing excellent nutritional support alongside its medicinal benefits.

### ◆ Digestive Stimulant

Bitter compounds in dandelion root (taraxacin and taraxacerin) stimulate appetite and increase production of digestive enzymes, improving overall digestion and supporting healthy gut motility.

## How It Works

Dandelion root's bitter sesquiterpene lactones stimulate bile secretion from the gallbladder, improving fat digestion and activating liver detoxification pathways. The inulin fiber feeds beneficial gut bacteria and helps regulate blood sugar levels. The natural diuretic effect occurs through a different mechanism than

pharmaceutical diuretics — dandelion increases kidney filtration without causing potassium loss, making it gentler and safer for long-term use in pets.

#### ■ Safety Note

Dandelion is generally very safe for most pets. Use with caution in animals taking diuretics or lithium, as dandelion may enhance their effects. Avoid in pets with gallstones or bile duct obstruction. Always ensure dandelion products are free from pesticides, as this plant is commonly sprayed in conventional lawn care settings.

■ **Did You Know?** Dandelion is one of the few plants where every part — flowers, leaves, stems, and roots — is edible and medicinal. The name comes from the French "dent de lion" (lion's tooth), referring to the jagged leaf edges. In medieval Europe, dandelion was a prized medicinal plant cultivated in monastery gardens.

Herb 04

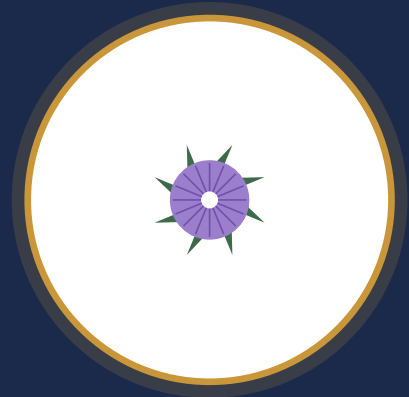
# Milk Thistle

*Silybum marianum*

## The Liver's Best Friend

**Best for:** Pets with liver disease, those on long-term medications (NSAIDs, steroids, phenobarbital), pets that may have ingested toxins, or aging animals as preventive liver support.

**Active compounds:** Silymarin complex (silybin, silydianin, silychristin), flavonolignans, flavonoids, fixed oils



Milk Thistle stands as one of the most extensively researched botanical remedies for liver health. Its active compound complex — silymarin — has demonstrated remarkable liver-protective and regenerative properties in hundreds of scientific studies, making it the leading herb for liver support in both veterinary and human integrative medicine. For pets on long-term medications or those with liver conditions, milk thistle is often considered essential.

## Key Benefits

### ◆ Protects Liver Cells

Silymarin alters liver cell membrane structure, preventing toxins — including medications, heavy metals, and environmental chemicals — from penetrating and damaging liver cells.

### ◆ Regenerates Liver Tissue

Uniquely, milk thistle actively stimulates the production of new liver cells (hepatocytes) through protein synthesis, helping the liver heal and rebuild from existing damage.

### ◆ Powerful Antioxidant

Silymarin neutralizes free radicals and reactive oxygen species that damage liver tissue, reducing the oxidative stress that drives chronic liver disease progression.

### ◆ Reduces Liver Inflammation

By inhibiting inflammatory cytokines and leukotriene production, milk thistle reduces chronic liver inflammation associated with hepatitis, fatty liver disease, and cirrhosis.

## How It Works

Silymarin works through three key mechanisms: First, it modifies liver cell membranes to physically block toxin entry — a unique mode of action not seen in any pharmaceutical. Second, it activates RNA polymerase I, a nuclear protein that stimulates new liver cell production. Third, silymarin is a powerful free-radical scavenger that protects liver cells from oxidative damage. Together, these make it simultaneously preventive and therapeutic for virtually all liver conditions.

### ■ Safety Note

Milk thistle has an exceptional safety profile across multiple species. It may have a mild laxative effect at high doses. It can potentially interact with medications metabolized by the cytochrome P450 enzyme system — always inform your veterinarian if your pet is taking other medications alongside milk thistle.

■ **Did You Know?** Milk thistle has been used medicinally for over 2,000 years. Roman naturalist Pliny the Elder (23–79 AD) wrote about its use for bile support. Today, it is one of the top-selling herbal supplements worldwide, and silymarin is an approved pharmaceutical drug for liver disease in several European countries.

Herb 05

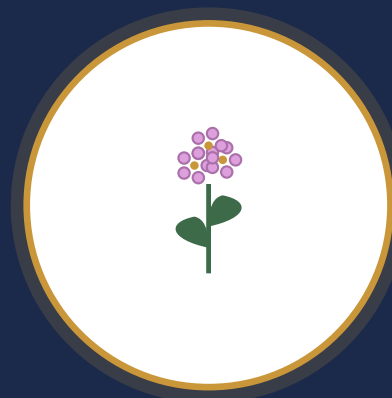
# Valerian Root

*Valeriana officinalis*

## The Natural Relaxant

**Best for:** Dogs and cats with anxiety disorders, noise phobias, travel stress, vet visit anxiety, separation anxiety, or sleep disturbances.

**Active compounds:** Valerenic acid, isovaleric acid, valepotriates (iridoids), GABA, glutamine, flavonoids



Valerian root has been prized for its calming and sleep-promoting properties for over 2,000 years. In modern pet care, it has emerged as a highly effective natural solution for managing anxiety, fear responses, and stress in dogs — offering a gentler alternative to pharmaceutical sedatives. Its complex combination of active compounds produces multi-layered calming effects that address anxiety at the neurochemical level.

## Key Benefits

### ◆ Reduces Anxiety

Valerian root significantly reduces situational and chronic anxiety through multiple calming mechanisms that target the nervous system naturally, without the grogginess or dependency associated with pharmaceutical options.

### ◆ Promotes Restful Sleep

For pets with disrupted sleep patterns or those too anxious to settle at night, valerian promotes deeper, more restorative sleep without causing morning sedation or lethargy.

### ◆ Eases Fear Responses

Particularly effective for noise phobias (thunderstorms, fireworks), travel anxiety, and separation anxiety — helping pets remain calmer in situations that would otherwise cause significant distress.

### ◆ Muscle Relaxation

Valerian has mild muscle-relaxant properties that help pets physically relax, reducing the physical tension and trembling that often accompanies anxiety states.

## How It Works

Valerian root contains valerenic acid, which inhibits the enzyme that breaks down GABA — the brain's primary inhibitory neurotransmitter. By increasing GABA availability, valerian produces anxiolytic effects similar to benzodiazepine medications but through a gentler, non-addictive mechanism. The valepotriates additionally interact directly with benzodiazepine receptors. Glutamine in valerian root may also cross the

blood-brain barrier, contributing further to its calming effects.

#### ■ Safety Note

Generally safe for dogs. Interestingly, cats may show stimulatory rather than calming effects — similar to catnip — due to analogous chemical compounds. Avoid combining with other sedatives or medications without veterinary guidance. Not recommended for pregnant or nursing animals. Allow a washout period when transitioning to or from pharmaceutical anxiolytics.

■ **Did You Know?** The name Valerian comes from the Latin "valere" (to be strong or healthy). During World War I and II, valerian root was widely used to treat shell shock and anxiety in soldiers on the front lines. It was the most commonly used sedative before the invention of benzodiazepines in the 1950s.

Herb 06

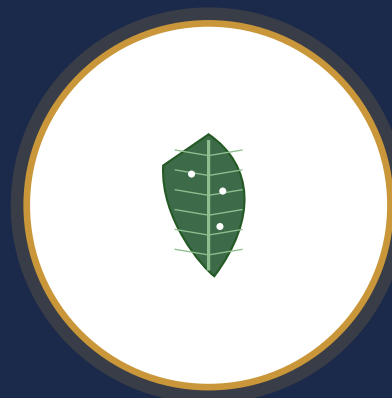
# Peppermint

*Mentha x piperita*

## The Digestive Refresher

**Best for:** Pets with gas, bloating, digestive spasms, nausea, motion sickness, bad breath, or those needing antimicrobial digestive support.

**Active compounds:** Menthol, menthone, menthyl acetate, rosmarinic acid, flavonoids, antioxidants



Peppermint is one of the most recognized and widely used herbs in the world, celebrated for its distinctive cool, refreshing aroma and powerful therapeutic properties. For pets, peppermint's range of benefits centers primarily on digestive health and microbial control. When properly diluted and formulated, it offers fast-acting relief for a range of common digestive complaints while providing secondary benefits for oral health and general comfort.

## Key Benefits

### ◆ Relieves Digestive Discomfort

Peppermint relaxes the smooth muscles of the digestive tract, reducing spasms, cramping, gas, and bloating effectively and quickly — often providing noticeable relief within minutes.

### ◆ Antimicrobial Properties

Menthol and other compounds in peppermint are active against a wide range of bacteria, viruses, and fungi, helping maintain a healthy and balanced digestive environment.

### ◆ Reduces Nausea

Peppermint is one of the most effective natural remedies for nausea, including motion sickness — particularly relevant for pets that experience anxiety and nausea during car travel.

### ◆ Freshens Breath Naturally

Peppermint's antimicrobial action controls oral bacteria that contribute to bad breath (halitosis) in pets, providing natural oral health support between dental cleanings.

## How It Works

Menthol — peppermint's primary active compound — activates kappa-opioid receptors in the GI tract, producing analgesia and reducing pain signals from the gut. It also activates TRPM8 (cold receptors), creating a cooling sensation that can override pain and nausea signals. The antimicrobial effects come from menthol's ability to disrupt bacterial and fungal cell membranes. Rosmarinic acid contributes additional anti-inflammatory and antioxidant activity.

**■ Safety Note**

Peppermint should always be used in diluted form for pets, especially cats, which lack the liver enzymes to efficiently process menthol. Avoid in young animals, pregnant pets, and those with liver disease. High concentrations can be toxic — liquid botanical products contain appropriately diluted amounts that are safe for adult pets when used as directed.

**■ Did You Know?** Peppermint is actually a natural hybrid between watermint and spearmint, and it rarely produces viable seed — almost all peppermint is propagated from cuttings. Dried peppermint leaves have been found in Egyptian pyramids dating to 1000 BC, and it is mentioned in ancient Chinese, Japanese, and Greek medical texts.

Herb 07

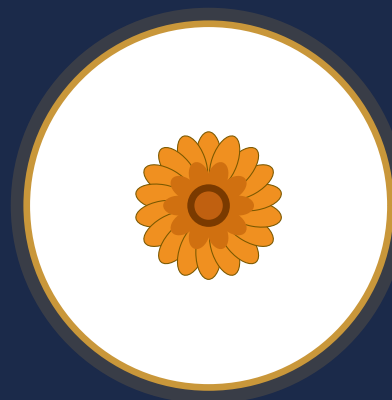
# Calendula

*Calendula officinalis*

## The Golden Healer

**Best for:** Pets with wounds, hot spots, rashes, skin infections, digestive inflammation, oral health issues, or those recovering from surgery.

**Active compounds:** Triterpene saponins (oleanolic acid, ursolic acid), flavonoids (quercetin, isorhamnetin), carotenoids, polysaccharides, essential oils



With its cheerful orange and yellow flowers, calendula is one of the most beautiful and therapeutically valuable plants in the botanical world. Long known as "pot marigold," calendula has extraordinary healing properties for both skin and internal tissues, making it an exceptional all-around remedy. Beloved by herbalists for centuries, modern science has confirmed the remarkable wound-healing and anti-inflammatory mechanisms that traditional practitioners observed.

## Key Benefits

### ◆ Accelerates Wound Healing

Calendula significantly increases the rate of wound healing by stimulating collagen production and new tissue formation, while simultaneously keeping the wound environment clean through antimicrobial action.

### ◆ Powerful Anti-inflammatory

Triterpene saponins and flavonoids in calendula reduce inflammation both topically (hot spots, rashes, insect bites) and internally (digestive tract inflammation from colitis or gastritis).

### ◆ Antimicrobial Action

Calendula inhibits the growth of Staphylococcus, Streptococcus, and several fungal species — making it effective for infected or at-risk wounds and skin conditions.

### ◆ Soothes Mucous Membranes

Internally, calendula soothes irritated mucous membranes throughout the GI tract, reducing inflammation from gastritis, colitis, and early-stage gastric ulceration.

## How It Works

Calendula's healing mechanism is multifactorial. Its triterpene saponins stimulate fibroblast migration and collagen synthesis, physically accelerating tissue repair. Flavonoids inhibit inflammatory enzymes (COX-1, COX-2, and 5-LOX), reducing both acute and chronic inflammation. Carotenoids contribute powerful antioxidant activity, protecting healing tissues from free radical damage. The polysaccharides enhance

immune cell activity at wound sites, improving the body's natural defense and repair mechanisms.

#### ■ Safety Note

Calendula is one of the safest herbs available, with an excellent safety record across many species and centuries of use. Avoid in pregnant animals, as it may stimulate uterine contractions. Use with caution in animals with known allergies to other members of the Asteraceae (daisy) family.

■ **Did You Know?** Calendula's Latin name comes from "calendae" (the first day of the month) because the flowers were observed to bloom on nearly every first day of the month in their native Mediterranean climate. During the U.S. Civil War, calendula flowers were used directly on battlefields as wound dressings to stop bleeding and prevent infection.

Herb 08

# Ginger Root

*Zingiber officinale*

## The Anti-Nausea Champion

**Best for:** Pets experiencing nausea, motion sickness, vomiting, arthritis, joint pain, digestive sluggishness, or those needing anti-inflammatory support.

**Active compounds:** Gingerols (6-gingerol, 8-gingerol, 10-gingerol), shogaols, paradols, zingerone, essential oils, proteolytic enzyme zingibain



Ginger is one of the most studied and versatile medicinal plants on Earth, used for over 5,000 years in Asian traditional medicine. For pets, ginger's remarkable anti-nausea, digestive, and anti-inflammatory properties make it an invaluable component of any holistic wellness approach. From car ride nausea to arthritic joint pain, ginger addresses a remarkable range of health concerns through well-understood mechanisms.

## Key Benefits

<p>◆ <b>Eliminates Nausea</b> Ginger is the most effective natural remedy for nausea and vomiting, working directly on both the gut and brainstem to interrupt nausea signals — often faster and more safely than pharmaceutical options.</p>	<p>◆ <b>Reduces Joint Inflammation</b> Gingerols and shogaols are potent COX-2 inhibitors, reducing joint inflammation and pain in arthritic pets. Studies show efficacy comparable to pharmaceutical NSAIDs — without the GI side effects.</p>
<p>◆ <b>Stimulates Digestive Motility</b> Ginger increases the rate of gastric emptying, preventing food from sitting too long in the stomach and reducing gas, bloating, and the discomfort of slow digestion.</p>	<p>◆ <b>Improves Circulation</b> By reducing platelet aggregation and supporting vasodilation, ginger improves blood flow and cardiovascular health throughout the body, supporting overall systemic wellness.</p>

## How It Works

Ginger operates through several complementary mechanisms. Its 5-HT3 receptor antagonist activity in the gut and brainstem directly interrupts nausea signaling — the same receptor targeted by prescription anti-nausea drugs. Gingerols inhibit prostaglandin synthesis by blocking COX-1, COX-2, and 5-LOX enzymes. The enzyme zingibain breaks down proteins, improving digestion, while gingerols stimulate

intestinal contractions to move food efficiently through the GI tract.

#### ■ Safety Note

Ginger is generally safe for most pets at appropriate doses. Use with caution in pets on blood-thinning medications (warfarin, aspirin) as ginger has mild anticoagulant effects. Avoid high doses in pets with clotting disorders or those scheduled for surgery. Introduce gradually to sensitive stomachs to avoid initial GI upset.

■ **Did You Know?** Ginger is so effective against nausea that NASA considered it for use in its space program, and sailors have used it for seasickness prevention for thousands of years. The ancient Indian epic Mahabharata mentions ginger as both a sacred cooking spice and a medicine, over 5,000 years ago.

Herb 09

# Turmeric

*Curcuma longa*

## The Golden Anti-Inflammatory

**Best for:** Aging pets, those with arthritis, hip dysplasia, chronic inflammatory conditions, metabolic health concerns, or as antioxidant support for all life stages.

**Active compounds:** Curcumin, bisdemethoxycurcumin, demethoxycurcumin (curcuminoids), ar-turmerone, turmerone, essential oils



Turmeric is arguably the most scientifically researched medicinal plant in the world, with over 12,000 peer-reviewed publications. Its primary active compound, curcumin, has demonstrated anti-inflammatory potency comparable to pharmaceutical drugs — without the side effects. For aging pets and those with chronic inflammatory conditions, turmeric's effects on joint health, mobility, and quality of life can be genuinely transformative.

## Key Benefits

<p>◆ <b>Reduces Chronic Inflammation</b> Curcumin is a master inhibitor of inflammatory pathways — NF-κB, COX-2, 5-LOX, and pro-inflammatory cytokines — addressing inflammation at its source rather than merely masking symptoms.</p>	<p>◆ <b>Supports Joint Health</b> Pets with arthritis, hip dysplasia, or general joint stiffness experience significant pain relief and improved mobility with regular turmeric supplementation — often within 4–8 weeks.</p>
<p>◆ <b>Powerful Antioxidant</b> Curcumin neutralizes free radicals more effectively than vitamins C and E, protecting cells throughout the body from oxidative damage that accelerates aging and disease.</p>	<p>◆ <b>Liver &amp; Metabolic Support</b> Turmeric supports liver function, improves fat metabolism, and has demonstrated positive effects on cholesterol levels and blood sugar regulation in multiple species.</p>

## How It Works

Curcumin's effectiveness comes from simultaneously targeting multiple inflammatory pathways. It directly inhibits NF-κB (the "master switch" of inflammation), suppresses COX-2 and 5-LOX enzymes (reducing prostaglandins and leukotrienes), and decreases levels of inflammatory cytokines including TNF-α, IL-1β, and IL-6. Unlike NSAIDs that block only COX pathways, curcumin's multi-target approach prevents the

body from bypassing the blockade. Bioavailability is greatly enhanced when combined with black pepper (piperine), increasing absorption by up to 2,000%.

#### ■ Safety Note

Turmeric is very safe at appropriate doses. High doses may cause loose stools in some pets. Avoid in pets with bile duct obstruction or gallstones. Use with caution in pets on blood thinners, diabetic medications, or acid-reducing drugs, as turmeric may potentiate their effects. Always use formulations with enhanced bioavailability for meaningful therapeutic benefit.

■ **Did You Know?** Turmeric has been used in Ayurvedic medicine for over 4,000 years and is consumed daily throughout India. Researchers have noted that India has among the lowest rates of neurodegenerative diseases in the world — a correlation actively studied in connection with turmeric's neuroprotective properties.

Herb 10

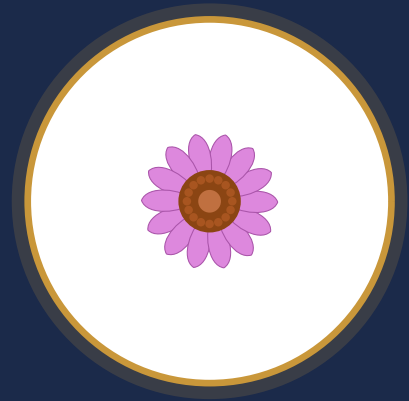
# Echinacea

*Echinacea purpurea*

## The Immune Activator

**Best for:** Pets prone to frequent infections, those recovering from illness, immunocompromised animals, or pets needing preventive immune support during high-exposure periods.

**Active compounds:** Alkylamides, echinacin (polysaccharides), glycoproteins, caffeic acid derivatives (echinacoside, cichoric acid), flavonoids



Echinacea is North America's most iconic medicinal plant and one of the best-selling botanical supplements worldwide. Prized by Native American peoples for centuries, echinacea's ability to modulate and strengthen the immune system makes it an essential tool for helping pets fight infections, recover from illness, and maintain robust immune function throughout their lives. Modern research has validated and explained the mechanisms behind its traditional reputation.

## Key Benefits

### ◆ Activates Immune Response

Echinacea activates macrophages, natural killer cells, and T-lymphocytes, increasing the body's ability to rapidly identify and destroy invading pathogens before illness takes hold.

### ◆ Antiviral Properties

Specific glycoproteins and caffeic acid derivatives in echinacea have demonstrated direct antiviral activity against several common viruses that affect companion animals.

### ◆ Accelerates Recovery

When used at the onset of illness, echinacea can significantly reduce both the duration and severity of upper respiratory infections and other common illnesses in pets.

### ◆ Supports Wound Healing

Echinacea stimulates wound healing through fibroblast activation and mild antimicrobial activity, supporting the body's natural tissue repair and immune defense processes.

## How It Works

Echinacea's immune effects come from multiple active compounds working synergistically. Alkylamides bind to CB2 cannabinoid receptors on immune cells, modulating their response. Polysaccharides directly activate macrophages, stimulating production of interferon and interleukins. Caffeic acid derivatives exhibit direct antimicrobial and antioxidant activity. Together, these create broad-spectrum immune enhancement

— increasing both the speed and effectiveness of the immune response.

#### ■ Safety Note

Echinacea is safe for short-term use (2–4 weeks). Prolonged continuous use may reduce its effectiveness through receptor desensitization — allow periodic breaks. Avoid in pets with autoimmune diseases (lupus, IMHA, IMTP) as immune stimulation may worsen these conditions. Use with caution in pets on immunosuppressive medications.

■ **Did You Know?** Echinacea was the most widely used medicinal plant among Native American tribes of the Great Plains, with documented use by at least 14 different nations. It was the most widely sold herbal medicine in the United States until the introduction of antibiotics in the 1950s, after which it was largely forgotten before experiencing a major research-driven revival.

Herb 11

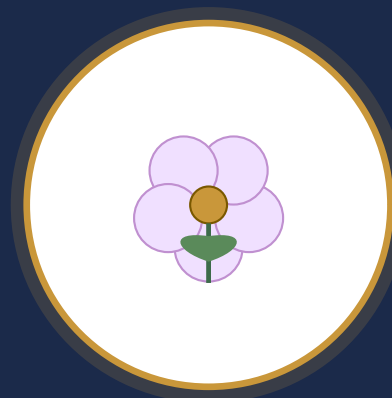
# Marshmallow Root

*Althaea officinalis*

## The Soothing Protector

**Best for:** Pets with GI irritation, constipation, IBD, urinary tract conditions, respiratory irritation, dry cough, or recovering from GI procedures.

**Active compounds:** Mucilage polysaccharides (25–35% of dry weight), flavonoids (kaempferol, quercetin), phenolic acids, pectin, asparagine



Despite sharing a name with a beloved confectionery treat — which was indeed originally made from this plant's roots — marshmallow root is a serious and highly effective medicinal herb. Its extraordinary mucilage content creates a unique soothing and protective action throughout the entire body, from the mouth to the intestines to the urinary tract. For pets with sensitive or inflamed internal tissues, it is profoundly comforting.

## Key Benefits

### ◆ Soothes Irritated GI Tract

The thick mucilage produced by marshmallow root coats and protects every surface of the digestive tract it contacts, providing immediate relief from irritation, inflammation, and acid damage.

### ◆ Urinary Tract Support

Marshmallow root soothes the bladder and urinary tract lining, reducing discomfort from UTIs and helping with inflammation associated with urinary crystals and stones.

### ◆ Respiratory Comfort

The mucilage soothes irritated throat and bronchial tissues, providing relief for pets with dry coughs, bronchitis, kennel cough recovery, or persistent respiratory irritation.

### ◆ Constipation Relief

By lubricating and moisturizing the intestinal wall, marshmallow root facilitates easier passage of stool — especially beneficial for cats and senior dogs prone to constipation.

## How It Works

Marshmallow root's mucilage — composed primarily of arabinose, galactose, and rhamnose polysaccharides — absorbs water and forms an extremely viscous gel upon contact with fluid. This gel physically coats mucous membranes, creating a protective barrier that shields sensitive tissue from stomach acid, mechanical irritation, and inflammatory mediators. The polysaccharides also have direct

anti-inflammatory activity by modulating complement pathways in the immune system.

#### ■ Safety Note

Marshmallow root is one of the safest herbs available, with virtually no reported adverse effects at appropriate doses. As with slippery elm, its coating effect may slow absorption of other medications — administer at least 2 hours apart from pharmaceuticals. The high mucilage content means hypersensitivity reactions are extremely rare.

■ **Did You Know?** The original marshmallow candy — popular since ancient Egypt — was made by whipping the sweet, foamy mucilage from marshmallow root with honey and nuts. Modern commercial marshmallows replaced this botanical extract with gelatin in the late 19th century, retaining only the name from this remarkable plant.

Herb 12

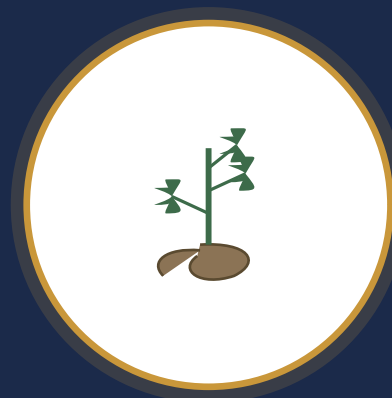
# Licorice Root

*Glycyrrhiza glabra*

## The Anti-Inflammatory Adaptogen

**Best for:** Pets with inflammatory conditions, GI ulcers, Addison's disease, respiratory conditions, allergic skin disease, or those needing cortisol modulation support.

**Active compounds:** Glycyrrhizin, glycyrrhetic acid, flavonoids (liquiritigenin, glabridin), saponins, phytosterols, polysaccharides



Licorice root is one of the most ancient and widely used medicinal plants in history, appearing in Assyrian, Egyptian, Chinese, Greek, and Indian traditional medicine texts spanning over 4,000 years. For pets, properly prepared licorice root provides powerful anti-inflammatory, adrenal-supportive, and soothing benefits. It is one of the few herbs with documented cortisol-modulating effects, making it valuable for conditions involving immune or adrenal dysfunction.

## Key Benefits

### ◆ Potent Anti-inflammatory

Glycyrrhizin and its metabolite glycyrrhetic acid have anti-inflammatory potency comparable to corticosteroids — without causing the immune suppression associated with steroid medications.

### ◆ Adrenal & Cortisol Support

Licorice root supports the adrenal glands and helps regulate cortisol levels, making it valuable for pets with Addison's disease or those recovering from prolonged steroid therapy.

### ◆ Heals GI Mucosa

DGL (deglycyrrhizinated licorice) is exceptional for healing gastric ulcers and GI irritation by stimulating mucus production and protecting the stomach lining from acid damage.

### ◆ Respiratory Support

Licorice root acts as a natural expectorant, loosening mucus in the airways and soothing irritated bronchial tissues in pets with coughs or respiratory infections.

## How It Works

Glycyrrhizin inhibits 11 $\beta$ -HSD2, the enzyme that breaks down cortisol, thereby increasing active cortisol levels at the cellular level — explaining its corticosteroid-like anti-inflammatory effects without immune suppression. It also inhibits phospholipase A2, reducing arachidonic acid release and subsequent prostaglandin production. The DGL form retains GI-protective benefits while removing the compounds responsible for potential side effects from prolonged standard licorice use.

### ■ Safety Note

Use deglycyrrhizinated licorice (DGL) for long-term use, as standard licorice can cause fluid retention, sodium elevation, and potassium depletion over time. Avoid in pets with hypertension, kidney disease, or those receiving corticosteroids. Not recommended for pregnant animals. Consult your veterinarian regarding appropriate form and duration for your pet's specific condition.

■ **Did You Know?** Licorice root was found among the treasures buried with Egyptian pharaoh Tutankhamun (King Tut) around 1323 BC. The ancient Chinese pharmacopoeia "Pen Tsao" lists licorice as one of the most important medicinal plants — a classification it maintains in Traditional Chinese Medicine to this day, where it is included in more herbal formulas than any other single herb.

# Safety Guide & Dosing Principles

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## General Principles of Safe Herbal Use

Botanical supplements are powerful tools, and like all potent substances, they must be used thoughtfully. The vast majority of pet owners who use high-quality herbal products — at appropriate doses, from reputable sources — do so safely and effectively. The following principles will help you get the best results while keeping your pet safe.

### 1. Always Start Low and Go Slow

When introducing any new supplement, begin with a lower dose than recommended and gradually increase over 5–7 days. This allows your pet's system to adjust and lets you observe their individual response. Some pets are more sensitive than others, and starting conservatively is always the wiser approach.

### 2. Follow Product Guidelines

ZoaVet liquid botanical products include dosing guidelines calibrated to your pet's weight. Always follow these guidelines as your starting point. Do not assume that "more is better" — botanical compounds can have biphasic effects, where lower doses produce desired effects and higher doses may produce opposite or unwanted effects.

### 3. Consider Drug-Herb Interactions

Some botanical compounds interact with pharmaceutical medications. The most important interactions to be aware of include: herbs with blood-thinning effects (ginger, turmeric, garlic) used alongside anticoagulants; liver-supporting herbs (milk thistle, dandelion) used alongside medications metabolized by the liver; diuretic herbs (dandelion) used with pharmaceutical diuretics; and sedating herbs (valerian) used alongside pharmaceutical sedatives. Always inform your veterinarian of all supplements your pet is receiving.

### 4. Herbs to Use with Extra Caution

Peppermint should be used only in diluted, properly formulated preparations — especially for cats. Licorice root (in standard, non-DGL form) should not be used long-term. Valerian may stimulate rather than calm cats. Echinacea should not be used continuously or in pets with autoimmune disease. Ginger and turmeric should be used cautiously in pets on blood-thinning medications.

### 5. Pregnancy and Nursing

Many herbs are not recommended for pregnant or nursing animals due to limited safety data. Specific herbs that may stimulate uterine contractions — including chamomile, calendula, valerian, and licorice —

should be avoided in pregnant pets. When in doubt, consult your veterinarian before supplementing a pregnant or nursing animal.

## **6. Quality Matters Enormously**

The quality, purity, and standardization of botanical products vary enormously between brands. ZoaVet products are formulated using standardized botanical extracts with verified levels of active compounds, tested for purity and contaminants, and produced under Good Manufacturing Practices (GMP). Using high-quality products from reputable suppliers is not optional — it is essential to safety and effectiveness.

## **7. Observe and Respond**

Monitor your pet closely when introducing any new supplement. Positive signs include improved energy, better coat condition, reduced discomfort, and improved digestion. Signs that may indicate a problem include vomiting, diarrhea, lethargy, loss of appetite, or skin reactions. If any concerning symptoms appear, discontinue the supplement and consult your veterinarian.

## Quick Reference: Benefits at a Glance

Herb	Primary Benefits	Best For	Safety Level
<b>Chamomile</b>	Calms Anxiety · Soothes Digestive Upset	Dogs and cats experiencing anxiety, digestive upset	★☆☆☆ Stress, skin irritat...
<b>Slippery Elm</b>	Soothes the GI Tract · Helps Both Constipation and Diarrhea	Pets with diarrhea, constipation, IBD, colitis, gastritis, enterocolitis	★☆☆☆ Acid ref...
<b>Dandelion Root</b>	Liver Support · Natural Diuretic Action	Pets needing liver support, those with fluid retention	★☆☆☆ Sluggish digestion, poor...
<b>Milk Thistle</b>	Protects Liver Cells · Regenerates Liver Tissue	Pets with liver disease, those on long-term medications	★☆☆☆ AIDS, steroids, pheno...
<b>Valerian Root</b>	Reduces Anxiety · Promotes Restful Sleep	Dogs and cats with anxiety disorders, noise phobias	★☆☆☆ Stress, vet visit an...
<b>Peppermint</b>	Relieves Digestive Discomfort · Antimicrobial Properties	Pets with gas, bloating, digestive spasms, nausea	★☆☆☆ Sickness, bad breath, ...
<b>Calendula</b>	Accelerates Wound Healing · Powerful Anti-inflammatory	Pets with hot spots, rashes, skin infections	★☆☆☆ Digestive inflammation, or...
<b>Ginger Root</b>	Eliminates Nausea · Reduces Joint Inflammation	Pets experiencing nausea, motion sickness, vomiting	★☆☆☆ Stomach issues, joint pain, dige...
<b>Turmeric</b>	Reduces Chronic Inflammation · Supports Joint Health	Pets with arthritis, hip dysplasia, chronic inflammation	★☆☆☆ Inflammatory conditions...
<b>Echinacea</b>	Activates Immune Response · Antiviral Properties	Pets prone to frequent infections, those recovering from illness	★☆☆☆ Sickness, immunocompromi...
<b>Marshmallow Root</b>	Soothes Irritated GI Tract · Urinary Tract Support	Pets with GI irritation, constipation, IBD, urinary tract infections	★☆☆☆ Coughs, respirator...
<b>Licorice Root</b>	Potent Anti-inflammatory · Adrenal Support	Pets with inflammatory conditions, GI ulcers, Addison's disease	★☆☆☆ Sickness, respiratory con...

**Remember:** This guide is for educational purposes. Always work with your veterinarian to develop a complete wellness plan for your pet. ZoaVet products are supplements, not replacements for professional veterinary care.



# Thank You!

**for choosing ZoaVet for your beloved companion**

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We are deeply grateful that you have trusted ZoaVet to support your pet's health and wellbeing.

Every product in our line is crafted with the same care and attention to quality that went into creating this guide.

We believe that nature provides powerful tools for wellness — and that our animal companions deserve the very best.

◆ **Here's to a long, healthy, and happy life together** ◆