



DR. SHADE'S

BITTER X

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Dr. Shade's Bitter X features a quartet of bitter herbs that help orchestrate optimal digestion and detoxification via the liver, gallbladder, and kidneys. Dandelion, gentian root, solidago (goldenrod), and myrrh essential oil comprise the foundation of our formula, while sweet orange essential oil adds a touch of sweetness. These potent herbs are delivered together in a liposomal formula, offering unparalleled bioavailability.



Supplement Facts

Serving Size: 1 mL (2 Pumps)
Servings Per Container: 50

	Amount Per Serving	% Daily Value
Proprietary Blend:	410mg	**
Liquid extracts of Dandelion (root), Gentian (root), Solidago gigantea (aerial parts), and Myrrh (Oleo-gum-resin), Essential oil of sweet orange		

**Daily Value not established

Other Ingredients: Glycerin, water, ethanol, tocopherol, highly purified phospholipids, acacia gum, natural mixed tocopherols

EDUCATION

BILE FLOW: THE MISSING LINK IN DETOXIFICATION

Detoxification is a complex, multi-step process that moves toxins out of cells, into the liver and gallbladder and out of the body via the digestive tract and kidneys. For decades, detoxification protocols have primarily addressed the intestine and kidneys, overlooking the critical role of the gallbladder and bile flow in facilitating successful detoxification.

Bile is a fluid produced in the liver and secreted by the gallbladder that both aids in the digestion of dietary fats and transports toxins into the intestine so they can be excreted from the body. Bile is comprised of bile acids, salts, phospholipids, cholesterol, and water. Fascinating research indicates that the cellular transporters that move bile acids and salts in and out of the intestine also transport toxins.^{1,2} Therefore, sluggish bile flow, also known as cholestasis, slows toxin efflux and impedes successful detoxification. Various factors contribute to cholestasis, including gallstones, biliary disease, chronic liver disease, certain medications, excess estrogen, and endotoxin, also known as lipopolysaccharide or LPS.^{3,4}

In addition to having a direct negative impact on detoxification, poor bile flow contributes to gastrointestinal dysbiosis and conditions such as small intestinal bacterial overgrowth (SIBO).⁵

Insufficient bile flow may also promote the formation of intestinal biofilm, a consortium of microorganisms embedded in a sticky matrix that allows pathogens to evade antibiotics and the immune system, enhancing their infectivity.⁶ Dysbiosis, SIBO, and intestinal biofilm exert negative feedback on detoxification by increasing LPS and inflammatory cytokines, creating a vicious cycle of bile stagnation and GI distress.⁷

WHY ARE BITTER HERBS IMPORTANT?

Bitter botanicals have long been used in traditional herbalism to support bile flow. Today, scientific research indicates that many time-honored bitter botanicals not only support bile flow, but also facilitate detoxification through multifaceted cellular mechanisms.

Dandelion supports diuresis, enhancing urinary elimination of toxins. It also protects the liver, enhances bile flow, inhibits LPS-induced inflammation, and upregulates antioxidant pathways such as Nrf2.^{8,9,10}

Gentian, a robustly bitter botanical, also promotes healthy bile flow. Two of its bioactive compounds, gentiopicroside and gentiolutein, have been found to protect the liver from cholestasis-induced liver damage, inhibit LPS-induced toxicity, and upregulate antioxidant enzyme activity.^{11,12,13}

Solidago, a flowering plant with tiny, bright yellow blossoms, has a long history of use in traditional herbalism for supporting the urinary tract. It promotes diuresis and toxin elimination while simultaneously increasing the activity of glutathione S-transferase, a critical enzyme in phase II detoxification.^{14,15} The bioactive polyphenols in Solidago also have antimicrobial activities against *Staphylococcus aureus* and *Candida albicans*, common infectious organisms in humans.¹⁶

Finally, the **essential oil of myrrh**, a resinous substance derived from the *Commiphora mukul* tree native to India, supports healthy bile flow by increasing the expression of the human bile salt export pump and promotes a healthy microbial balance.^{17,18}

Quicksilver Delivery Systems[®] improve upon liposomal and emulsification technology with smaller, more stable particles made from the highest-grade ingredients available. In addition to exceptional absorption rates, these tiny liposomal and nanoemulsified particles increase diffusion across mucous membranes, enhance lymphatic circulation of nutrients and support cellular delivery.

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References available at quicksilverscientific.com/bitterxreferences

WARNING: NOT FOR USE BY INDIVIDUALS UNDER THE AGE OF 18 YEARS. DO NOT USE IF PREGNANT, BREAST-FEEDING, OR PLANNING TO BECOME PREGNANT. KEEP OUT OF REACH OF CHILDREN. Consult a healthcare professional before use if you have any medical condition or are taking any other supplements or medications. Do not exceed recommended dosage. See www.quicksilverscientific.com for additional safety information.

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