

BioFilm-X

- Promotes Healthy Microbial Balance
- Helps Maintain Gastrointestinal Comfort
- Enhances Immune Function and Provides Antioxidant Protection

This product provides a blend of three essential oils that act in synergy to promote healthy microbial balance and immune support. Formulated to support gastrointestinal flora by enhancing immune function, this product contains thyme, oregano and clove oils. These have been used for centuries to promote microbial balance and to help protect the immune system from microbial stressors.

Overview

GI health is directly affected by factors such as poor diet and a stressful lifestyle. The prevalence of refined sugars and carbohydrates and the low presence of fiber in the Western diet have been directly linked to the alteration of the GI microflora.¹ Maintaining healthy microbial balance is an integral part of promoting optimal GI health and overall well-being. *Candida albicans* is one such organism. Maintaining normal levels of the unicellular yeast-like form of *C. albicans* and preventing it from converting to the invasive, filamentous form can be a valuable strategy for patients with GI challenges. The body's immune system is a complex and dynamic defense system, it requires optimal nutrition and abundant antioxidant support to help promote strong immune function.

Thyme Oil (Thymol)[†]

Thymol, the essential oil of thyme used in this product, is standardized to contain up to 75% high-powered oil to help maintain gastrointestinal comfort. In an in vitro study, thymol, as well as eugenol (essential oil from clove), interfered with the structure of the *C. albicans* cell membrane, causing cellular and metabolic changes to *C. albicans*.² In a similar study, thymol reduced the number of aggressive hyphal forms of *C. albicans*, compared to control.^{2,3} In-vitro studies show that thymol

interferes with the production of *C. albicans*'s protective matrix (or biofilm), as well as the biofilms of mature *C. albicans* forms, thus creating an inhospitable environment for *C. albicans* to thrive.⁴

Clove Oil (Eugenol)[†]

The clove oil used in this product is standardized to contain up to 86% eugenol, which provides antioxidant protection and promotes healthy microbial balance. In vitro, eugenol adversely affected the adherence of *C. albicans* as well as inhibited filamentous cell growth.⁵ In an in vitro study examining the effects of 30 different plant oils on *C. albicans* biofilm formation, clove oil was one of only four oils that showed significant biofilm reduction (28.57%) properties.⁶ In vitro, clove oil shows a strong ability to disrupt the normal metabolism of many GI pathogens. In addition, the essential oil of clove has been shown to have the highest ORAC (oxygen radical absorbance capacity) value of any essential oil available. The ORAC value is a scale developed by scientists at the National Institute of Aging. The ORAC determines a compound's ability to scavenge free radicals and thus reduce the burden of oxidative stress.

Oregano Oil[†]

The oregano oil used in this product is standardized to contain up to 75% carvacrol, which provides antioxidant protection and promotes healthy microbial balance.⁷ In a study examining the actions of oregano oil (600 mg/day for 6 weeks) in 13 adults, showed that carvacrol promoted a healthy microflora and the positive benefits were confirmed through stool analysis.

[†]These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Directions

1 soft gel capsule three times per day or as recommended by your health care professional.

Does Not Contain

Gluten, corn, yeast, artificial colors and flavors.

Cautions

Do not consume this product if you are pregnant or nursing. Consult your physician for further information.

Supplement Facts

Serving Size 1 Soft Gel Capsule

Servings Per Container 90

	Amount Per	% Daily
1 soft gel capsule contains	Serving	Value
Thyme Oil (Standardized to contain 30-75% thymol)	200 mg	*
Clove Oil (Standardized to contain ≥ 80% eugenol)	100 mg	*
Oregano Oil (Standardized to contain 55-80% carvacrol)	100 mg	*

* Daily Value not established

References

1. Frizelle F. Constipation in adults. *Clin Evod* (online). 2007;0413(August 1).
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3. Braga, P. C., Alfieri, M. et al. Inhibitory activity of thymol against the formation and viability of *Candida albicans* hyphae. *Mycoses*. 2007; 50(6):502-506.
4. Braga, P. C., Culici, M. et al. Thymol inhibits *Candida albicans* biofilm formation and mature biofilm. *Int J Antimicrob Agents*. 2008; 31(5):472-477.
5. He, M., Du, M. et al. In vitro activity of eugenol against *Candida albicans* biofilms. *Mycopathologia*. 2007; 163(3):137-143.
6. Zgarwal, V., Lal, P. et al. Prevention of *Candida albicans* biofilm by plant oils. *Mycopathologia*. 2008; 165(1):13-19.
7. Chami, N., Bennis, S. et al. Study of anticandidal activity of carvacrol and eugenol in vitro and in vivo. *Oral Microbiol Immunol*. 2005; 20(2):106-111.

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