



**Toyo Bio-Pharma™**

# Fermented Product Line

## Enhanced efficacy through fermentation

From wine-making to culturing cheese, civilizations initially benefited from microbial fermentation by accident. Utilized for thousands of years, the fermentation process now joins with modern stringent quality control and vast production scales.

Bridging tradition and technology, Toyo Bio-Pharma™ is one of the few companies in the world to harness the power of fermentation on such a large industrial scale. The resulting health foods and nutraceutical products offer consumers numerous potential health benefits in convenient, effective forms.

Toyo Bio-Pharma is a world leader in the field of fermentation, at the front of research, product development and manufacturing. The company's core technologies are fermentation, selective culture and botanical development. Toyo Bio-Pharma creates unique products with enhanced potency and functionality through proprietary fermentation technology.

Strict quality controls are applied to the age-old biological process of fermentation. The fermented extracts undergo a cutting-edge manufacturing process, resulting in powdered final products that are versatile for use on their own or as key ingredients in the clients' proprietary blends.



Bridging tradition and technology, Toyo Bio-Pharma has harnessed the power of the natural fermentation process on an industrial scale.



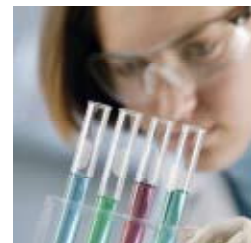
## Fermented Cabbage Extract

Cabbage is known as a health-promoting food rich in antioxidants. The fermentation process concentrates its antioxidant and immune-stimulating effects. Toyo Bio-Pharma studies have shown fermented cabbage extract to promote dermal health from the inside out. Both human and animal studies have shown that this product possesses powerful antioxidants that help combat the effects of pollution, stress, aging and damage.

Fermented cabbage extract has been shown to support the digestive system, making the process of digestion smooth and assisting absorption of necessary nutrients by:

- promoting blood flow to the stomach\*
- helping rebuild mucous membranes\*
- increasing the amounts of beneficial mucous\*
- regulating the over-activity of pepsin\*
- supporting gastrointestinal health\*

Other studies have also explored the immune-stimulating effects of fermented cabbage extract. One *in vitro* study utilizing human lymph cells showed that fermented cabbage extract promoted significant activation of the immune system cells responsible for maintaining optimum immune system health.



## Fermented Green Pepper Extract

Peppers have long been known as a beneficial addition to any healthy weight management lifestyle. However, their strong flavor and tendency to irritate the digestive system frequently limit their use. For this reason, the Toyo Bio-Pharma extract utilizes the relatively mild green pepper. Its lipolytic effects are uncompromised.

*In vitro* studies involving the adipocyte (fat cells) of rats showed that fermented green pepper extract enhanced lipolysis in white fat cells and the fat-burning process in brown fat cells. In another animal study, the administration of green pepper extract was connected to a significant reduction of visceral fat.

Weight management is not only a cosmetic issue. Visceral fat, or fat around internal organs, is associated with many life-style related problems.

When combined with a healthy lifestyle of exercise and a comprehensive nutrition plan, fermented green pepper extract offers a natural approach to weight management, stimulating the body's own lipolytic and fat-burning capabilities.

## Fermented Orange Extract

Skin consists of the protective epidermis and the deep vascular layers of the dermis. Responsible for skin's elasticity and strength, the dermis is composed of complex fibers, nerves and capillaries. Collagen proteins make up 70% of dermal dry weight. Intricate elastin fibers thread their way throughout the collagen. The combination of healthy collagen and elastin results in smooth elastic skin. Wrinkles and fine lines develop when the effects of stress, aging and environmental threats cause collagen and elastin to degrade.

Fermented orange extract holds potential for promoting dermal health through protecting healthy collagen.\* Toyo Bio-Pharma studies examined the effect of adding the extract to a collagenase reaction solvent in which collagen degradation is taking place. It was found that the fermented extract was 13 times more effective at inhibiting collagenase degradation than unfermented orange extract.

## Manufacturing & Safety

- No chemical media used in extraction processes
- Rigorous quality control standards in fermentation process

Toyo Bio-Pharma assists manufacturers in determining the most appropriate form for their final product, paying special attention to the issue of liquid solubility. Recommended dosages vary for each product. Our products are scientifically proven to be safe and effective. Women who are pregnant or nursing and those under 18 years of age should consult with a physician before taking these or any other natural supplement products.

## The Company

Toyo Bio-Pharma has tremendous capacity and expertise in manufacturing custom formulations, conducting laboratory tests and validating health benefits. Toyo Bio-Pharma is Japan's largest developer and OEM producer of raw materials for food supplements. Competitive and research driven, they sell more FOSHU products than any other company worldwide. As such, Toyo Bio-Pharma is ideally situated to work with clients on a contract basis and has proven formulas that the company is willing to share for mutual success in advancing new markets.

The company follows the rigorous standards of ISO 9001:2000 and is GMP (FDA's Good Manufacturing Practices) compliant for food products.





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### **Fermentation Processed Products:**

- + Enhanced potency and efficacy through fermentation
- + Final products in convenient powder form
- + Fermented green pepper extract offers a natural support for weight management\*
- + Dermal health promoted by fermented cabbage and orange extracts\*
- + Fermented cabbage extract promotes immune-stimulating benefits\*



**Toyo Bio-Pharma™**

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**\* 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.**