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## ZEALUTEIN®

### The Stabilized Lutein Composition

ZeaLutein® is Sabinsa's new, patent pending, stabilized lutein composition consisting of a mixture of natural xanthophyll carotenoid pigments and Bioperine®, the company's patented nutrient bioavailability enhancer. Obtained exclusively from marigold petals and specially grown cayenne pepper varieties, lutein and zeaxanthin in the composition are protected and stabilized by a proprietary method and blend of compounds called XenoGard®.

Carotenoids have been studied extensively for their role as antioxidants in the prevention of cancer and other human diseases. Their nutraceutical significance is attributed to their well-researched antioxidant and immunomodulating/immunostimulating actions. These actions are manifested in their ability to reduce oxidative stress and/or depression of the immune system, in conditions such as age-related macular degeneration, cataracts, atherosclerosis, and some forms of cancer.

The highly unsaturated conjugated chain of carotenoids is very sensitive to air, oxidizing and reducing agents and structural alterations. Lutein and other carotenoids need to be stabilized for protection against environmental hazards and detrimental changes during processing.

### Advantages of Zealutein®

#### Unique composition

ZeaLutein® contains a stabilized selected xanthophylls blend, with enhanced bioavailability. The composition of Zealutein is as follows:

Component	Percent
Lutein	5 (minimum)
Zeaxanthin	1 (minimum)
Capsanthin	1 (minimum)
Proprietary natural xanthophylls blend	1-2
BioPerine®	2

\*black pepper extract standardized to contain a minimum of 95% piperine) - a bioavailability enhancer (US patent #s 5,536,506; 5,744,161; 5,972,382; 6,054,585)

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Here the ratio of lutein to zeaxanthin (5:1) is similar to that observed in the human plasma.

- Validated biological actions

In laboratory studies Zealutein was found to be an efficient antioxidant and inhibited inflammation and skin tumors in animal models.

- Enhanced Stability

A proprietary blend of compounds (XenoGard®) in the composition helps to enhance its storage life of and retain its biological activity.

## References

1. Research Report (2001-2002) Studies at Rutgers University, sponsored by Sabinsa Corporation.

## TECHNICAL FOCUS

Samir Nagar recently joined Sabinsa Corporation's Utah facility as Manager of Production. He received his Bachelors degree in Pharmacy from L.M. College of Pharmacy, a leading pharmacy school in India, in 1984. In 1996, he completed his Masters degree in Pharmacy specializing in Pharmaceutics and Pharmaceu-tical Technology. During his six years of Pharmacy education, Samir always finished at the top of his class.

Prior to joining Sabinsa, Samir worked for leading pharmaceutical companies in India including Hoechst, Cadilla Labs, Torrent Pharmaceuticals and Intas Pharmaceuticals., gathering expertise in formulation development, large-scale production and quality assurance. He worked extensively on sustained release products and spray granulation technology. His responsibilities also entailed

interaction with numerous foreign regulatory authorities, with regard to preparing dossiers and obtaining approvals for products and facilities.

Samir will oversee all aspects of Sabinsa's new spray granulating, roll

compaction and blending facility in Utah. He will also work with interested parties looking for custom product formulations based on the company's equipment capabilities.



ForsLean®, continues to interest supplement manufacturers across the world. A recent presentation in Japan was well-attended by marketing and scientific personnel from leading Japanese companies.

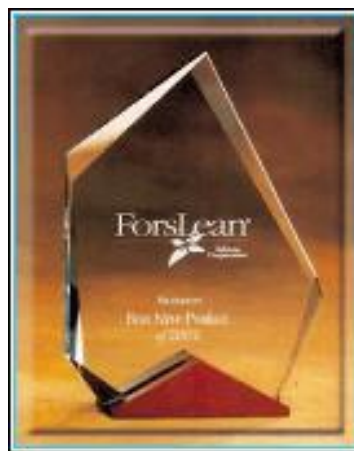
ForsLean® is Sabinsa's proprietary composition extract of Coleus forskohlii root, standardized for 10 percent forskolin. ForsLean® has shown promising results in three areas; enhancing lean body mass, promoting fat loss and promoting weight loss. In September of 1998 Sabinsa was granted a use patent for this application of forskolin in its ForsLean® composition. The patent (US Patent # 5,804,596) describes the preparation of this unique composition and its use in the promotion of lean body mass and ForsLean®, has been clinically evaluated at one dose, 250 mgs twice daily. This provides 50 mgs of forskolin, the primary active compound in ForsLean®. Dosage has been in the form of a two piece, hard shell capsule. In an open field clinical study, 6 overweight, but otherwise healthy women,

received one capsule twice daily for eight weeks. During the eight week trial, the



ForsLean® Presentation in Japan

mean values for body weight and fat content significantly decreased, whereas lean body mass was significantly increased as compared to the baseline. Neither the systolic/diastolic blood pressure, nor the pulse rate was adversely affected during the trial. Indeed, a trend was observed of lower systolic/diastolic pressure during the course of treatment.



A 12 week clinical trial in Japan and a study in the US designed as a double blind, placebo-controlled investigation of ForsLean® versus a similarly matched placebo for 12 weeks, are currently in progress.

ForsLean® has been cleared for nutritional use by the Japanese FDA. Safety studies performed by independent laboratories, earlier, revealed an oral LD50 value greater than 2000 mg/kg and the absence of mutagenicity, as determined by the Ames test.