BLAMUS™

Testosterone Boosting Efficacy of a Novel Curculigo orchioides Root Extract*

Cepham's Invention & Background Information: At Cepham, our scientific team has produced a unique, free testosterone boosting supplement ingredient Blamus™, enriched in 30% curculigosides, from the rhizome of an endangered medicinal plant, Curculigo orchioides, which has been demonstrated to boost free testosterone in independent University study.

Ethnobotany: Curculigo orchioides Gaertn (family Hypoxidaceae), also known as black or kali musli. From ancient Ayurvedic texts, the rhizome of this novel plant has been used for diverse medicinal purposes including impotency, aphrodisiac activity, diuretic, jaundice, sports nutrition, exercise and muscle building. The rhizome was later found to contain unique health promoting constituents including phenolic glycoside, curculigoside, triterpenoid, saponins, flavones and cellulose. Our dedicated research team has uniquely isolated and concentrated the curculigosides to at least 30% concentration in Blamus™.
Research in Independent University study has demonstrated its unique potential to boost free testosterone level to a significant extent. Thus, demonstrating the potential of Blamus™ for extensive application in Sports Nutrition, Exercise, Muscle Building, Vitality and Vigor.

The Unique Pathophysiology of Natural Curculigosides: Curculigosides has diversified health benefits especially in promoting endurance, vigor and vitality, as well as to promote healthy free testosterone levels. It has also been found to support healthy athletic performance, as well as balanced energy and mood. Curculigosides work synergize with body's immune system, optimally balancing body's hormonal, circulatory and cardiovascular physico chemical performance. Independent University Research studies have demonstrated Blamus™ caused remarkable in serum free testosterone levels (Table 1).

Table 1: Effect of test compound on serum total testosterone and free testosterone levels

Treatment group	Total testosterone (pg/mL)	Free Testosterone (pg/L)
Normal control	374 ± 86.27	439 ± 19.8
10 mg/kg	379 ± 10.98	487 ± 29.44
25 mg/kg	344 ± 26.57	497 ± 44.45
50 mg/kg	310 ± 18.49	715 ± 33**

*10 mg/kg: Test compound 10mg/ml; oral gavage; 25 mg/kg: Test compound 25 mg/ml; oral gavage; 50 mg/kg: Test compound 50 mg/ml; oral gavage. **p<0.0001 as compared to normal control, 10 mg/kg & 25 mg/kg.*

**Note: The total testosterone levels are expressed as pg/mL whereas free testosterone levels are expressed as pg/L. We used the units that are same as depicted in the ELISA kit manual. If we convert the levels of free testosterone levels from mg/L to mg/mL, the free testosterone levels will be reduced by 1000 times.

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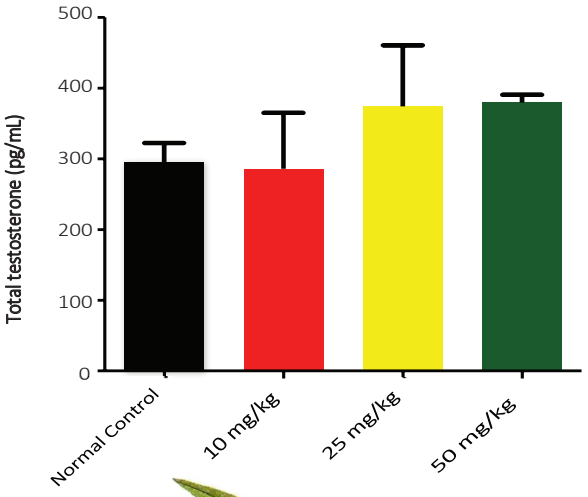
Extensive Testicular Histopathological analyses including investigations on the seminiferous tubules, spermatogenesis, sperm cell morphology, Leydig cells and Sertoli cells have demonstrated that Blamus™ improved structural integrity (Table 2).

Table 2. Dose-dependent effects of Blamus™ on the seminiferous tubules, spermatology, sperm cell morphology, Leydig cells and Sertoli cells in control and treated rats over a 28 day of treatment.

Structural features	Control	CO (10 mg/kg bw p.o.)	CO (25 mg/kg bw p.o.)	CO (50 mg/kg bw p.o.)
Seminiferous tubules	Dilated tubules, Basement membrane is intact. Spermatogenesis is absent in most of the tubules.	Tubules are normal with intact basement membrane with sertoli cells lining on it.	Tubules are normal with intact basement membrane with sertoli cells lining on it.	Tubules are normal with intact basement membrane with sertoli cells lining on it.
Spermatogenesis	Abrupt/ disrupted. Spermatogonia and primary Spermatocytes. Secondary spermatocytes, spermatid and matured sperm cells are absent in most of the tubules.	Spermatogenesis is normal. Few tubules doesn't show spermatogenesis, whereas spermatogonia and primary Spermatocytes, secondary spermatocytes, spermatid and matured sperm cells are clearly seen in most of the tubules.	Spermatogenesis is normal in most of the tubules whereas a very few tubules doesn't show the process of spermatogenesis. All the major stages of spermatogenesis can be seen.	Spermatogenesis is normal in most of the tubules whereas a very few tubules doesn't show the process of spermatogenesis. All the major stages of spermatogenesis can be seen.
Sperm cell morphology	Not fully developed. Sperm head (Nucleus) is not visible	Fully evolved sperm cells are seen.	Prominent and fully developed sperms are present	Prominent and fully developed sperms are present
Leydig cells	Visible but the number is less	Visible but the number is less	Visible but the number is less	Visible but the number is less
Sertoli cells	Most of the tubules doesn't show an adequate number of sertoli cells	Sertoli cells are adequately present along with the basement membrane	Sertoli cells are adequately present along with the basement membrane.	Sertoli cells are adequately present along with the basement membrane

Safety: Extensive Blood Chemistry Analyses and Diverse Safety Studies ascertained the broadspectrum safety of Blamus™.

Figure 1. Dose-dependent effect of Blamus™ (standardized Curculigo orchioides extract at 0, 10, 25 and 50 mg/kg body weight doses) on Free Serum Testosterone Level at 28 days of treatment ($p<0.0001$ as compared to control)



Overall, Blamus™ provides significant health benefits including:

1. Promotes Attention, Focus and Well-Being*
2. Attenuates Muscle Mass*
3. Increases Muscle Strength*
4. Increases Stamina*
5. Potentiates Endurance*
6. Enhances Grip Strength*

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