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## **SURAT TUGAS**

NOMOR: 724 /F.03.01/2021

Pimpinan Fakultas Farmasi dan Sains, Universitas Muhammadiyah Prof. DR. Hamka dengan ini memberi tugas kepada :

- Nama : Dr. apt. Rini Prastiwi, M.Si.
- Jabatan : Dosen FFS UHAMKA
- Alamat : Islamic Center Jl. Delima Raya II/ IV, Perumnas Klender – Jakarta Timur
- Tugas : Mengikuti Seminar: “The5<sup>th</sup> International Conference on Pharmaceutical Nanotechnology/ Nanomedicine”. dengan judul “ANTIHYPERTENSIVE AND ANTIOXIDANT ACTIVITIES OF *Cnidocolus aconitifolius* (Mill.) I. M. Johnst. LEAVES”.
- Waktu : Sabtu, 11 Desember 2021
- Penyelenggara : Fakultas Farmasi Universitas Pancasila
- Lain-lain : Setelah melaksanakan tugas agar memberikan laporan kepada Dekan atau sama yang memberi tugas.

Demikian surat tugas ini diberikan untuk dilaksanakan dengan sebaik-baiknya sebagai amanah dan ibadah kepada Allah Subhanahu Wata`ala

Jakarta, 06 Desember 2021

Dekan



**Dr. apt. Hadi Sunaryo, M.Si.**



Faculty of Pharmacy  
Pancasila University

# CERTIFICATE

No : 467/Sert/FF/UP/XII/2021



THE 5th NANOCONFERENCE 2021  
FFUP

Presented to :

**Dr.apr. Rini Prastiwi, M.Si.**

**PARTICIPANT**

For completing the seminar international with topic :

**The 5th International Conference on Pharmaceutical  
Nanotechnology/Nanomedicine**

**"Application of Nanotechnology in Drugs, Cosmetics and Herbal Medicines"**

held on Saturday, 11th December 2021



Dean

Prof. Dr. apr. Shirly Kumala, M.Biomed.

Chairman

apt. Drs. Kosasih, M.Sc.

# ANTIHYPERTENSIVE AND ANTIOXIDANT ACTIVITIES OF *Cnidoscolus aconitifolius* (Mill.) I. M. Johnst. LEAVES



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## ABSTRACT

**Objectice:** This study aims to determine the antihypertensive and antioxidant activity of Japanese papaya leaves extract (CAe). The parameter for antihypertensive was the blood pressure. The parameters of antioxidant activity were malondialdehyde (MDA) and catalase. The rats induced by cyclosporine

**Methods:** The rats divided into seven groups of rats (n = 4), the normal group, the negative control group/hypertension group, and the hypertension group with therapy of captopril, vitamin C, CAe (250; 500; 1000 mg/Kg). Each group given orally induced cyclosporine 15 mg/kg for seven days to increase blood pressure, except the normal group. Systolic and diastolic blood pressure measured by the tail-cuff method. After administration of therapy, at the end of treatment, MDA and Catalase levels of mice were measured in each group.

**Results:** Captopril and CAe could significantly decrease systolic and diastolic blood pressure ( $p < 0.05$ ) compared to the negative cyclosporine-induced group. CAe (500 and 1000 mg/kg) can decrease of systole and diastole blood pressure not significantly different ( $p > 0.05$ ) with the captopril group. CAe (1000mg / KgBB) can reduce MDA in proportion to the vitamin C. The antioxidant content of CAe can increase catalase activity in cyclosporine-induced white rats.

**Conclusion:** *Cnidoscolus aconitifolius* ethanol leaves extract can decrease systolic and diastolic blood pressure and can reduce MDA levels and increase catalase activity in cyclosporine-induced mice.

**Keywords:** Antihypertension, *Cnidoscolus aconitifolius*, catalase, MDA, antioxidant



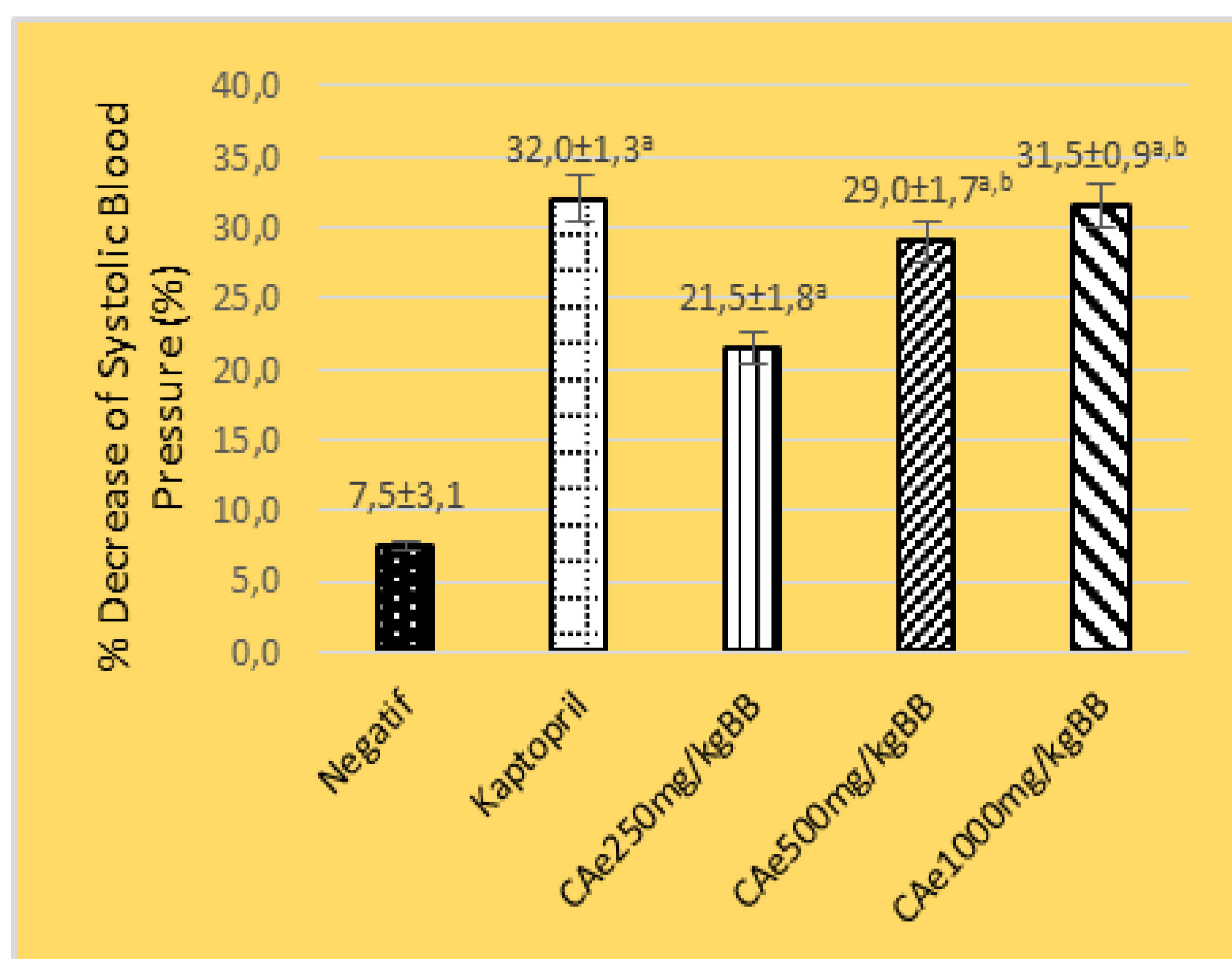
## INTRODUCTION:

*Cnidoscolus aconitifolius* (Mill.) I. M. Johnst. used traditionally as a laxative, diuretic, circulatory stimulant and to improve digestion.<sup>1</sup> Based on Emelike and Unegbu's research<sup>2</sup> *Cnidoscolus aconitifolius* leaves extract (CAe) can reduce blood pressure in mice. *Cnidoscolus aconitifolius* leaves are high in essential macronutrient mineral content such as potassium which plays a role in controlling hypertension and in reducing the risk of stroke.<sup>2</sup> Japanese papaya leaf water extract 400-600 mg/kg is useful as an antioxidant.<sup>3</sup> Antioxidants play a role in the prevention of cardiovascular disease.<sup>4</sup> Antioxidants are known to prevent oxidative damage caused by free radicals to prevent various diseases. Based on the background, this study was conducted to find out the antihypertensive and antioxidant activity of Japanese papaya leaf ethanol extract (CAe) in hypertensive rats induced by cyclosporine.

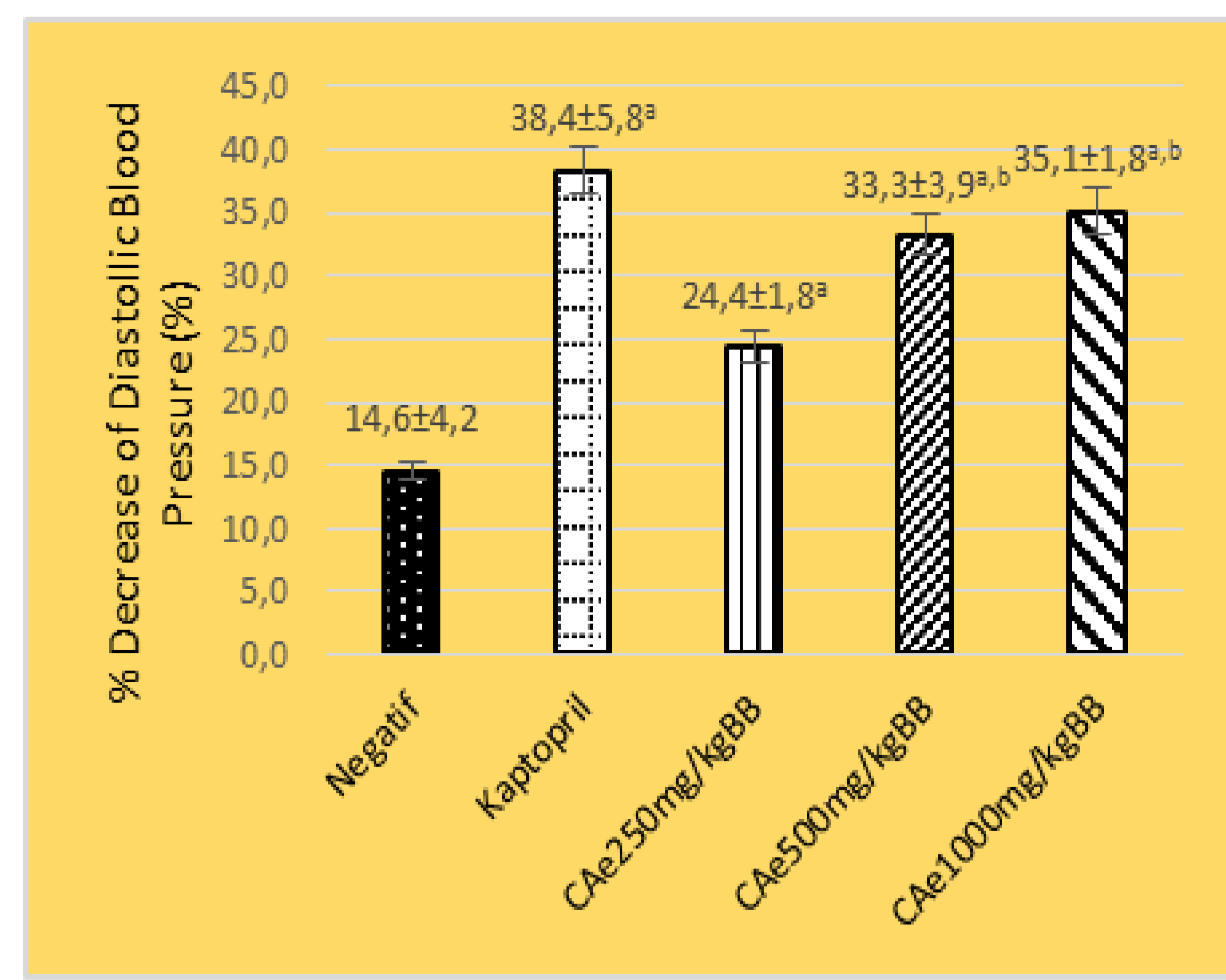
## METHOD

### Experimental Groups and Protocol

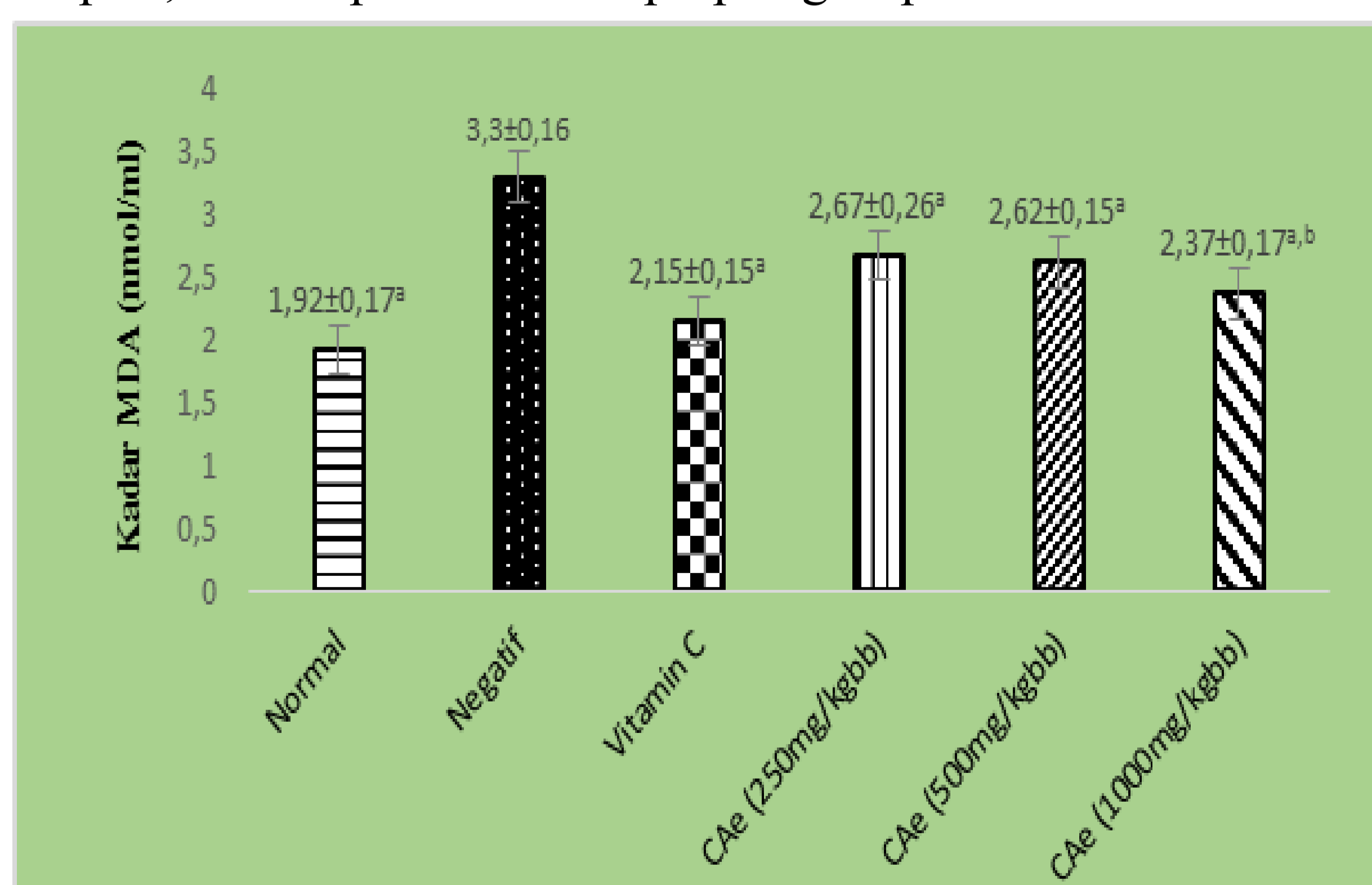
Rats divided into seven groups, each group consisting of 4 male rats. In the normal group, the mice were only given food and drink during the test; Negative group or hypertension, mice induced CSA (15mg/kgBW/day orally for 7 days without therapy (given Tween 80); Captopril group, mice made hypertensive and then given captopril therapy (0.25mg/200gBW) orally; vitamin C group, rats were made hypertensive and then given oral vitamin C therapy; the test group, rats were made hypertensive and then given CAe therapy (250,500,1000 mg/kgBB)



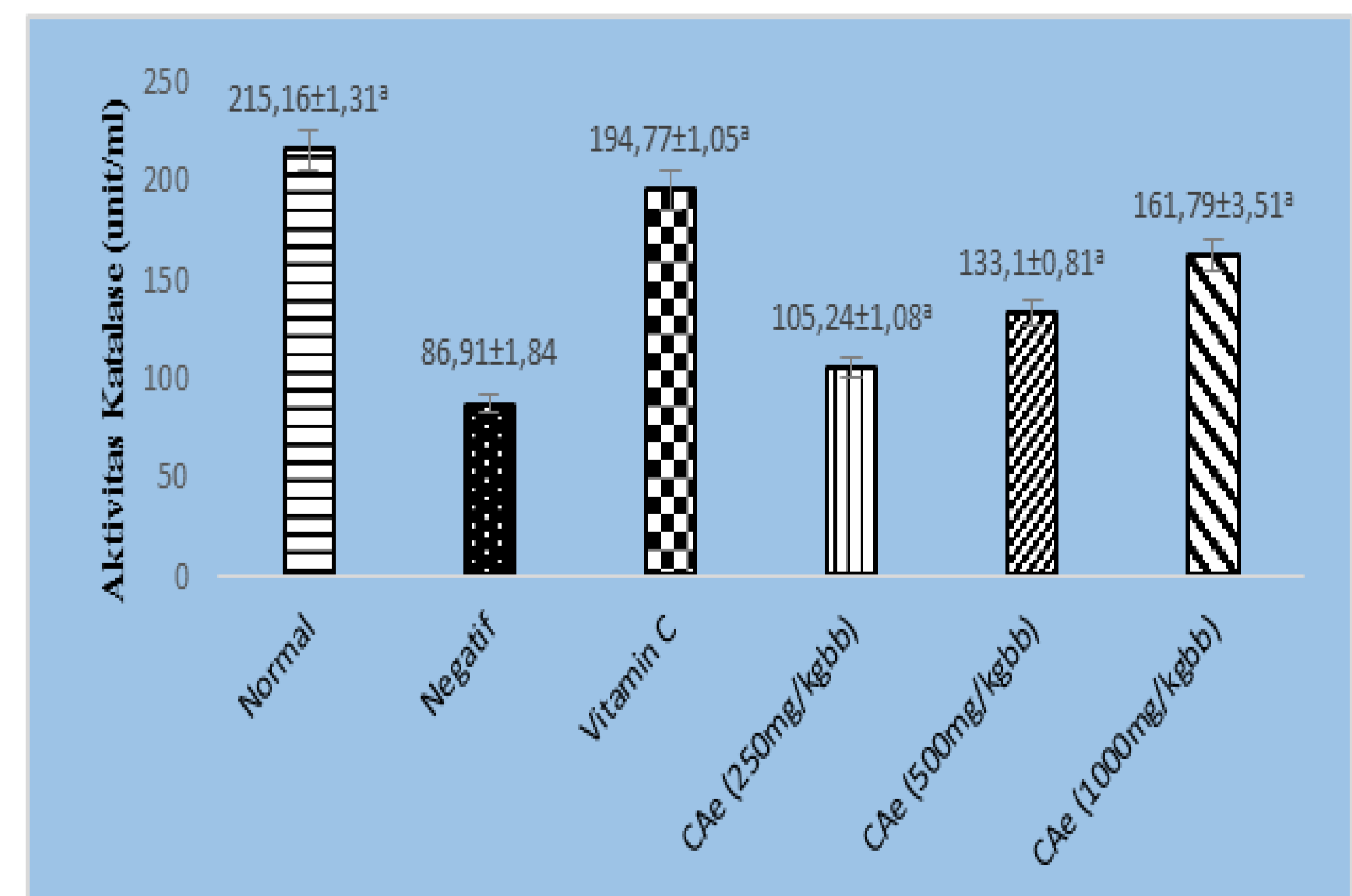
**Figure 1.** Effect Of CAe to persentation decrease of systole blood pressure of cyclosporine induced mice  
<sup>a</sup> $p < 0,05$  Compared with negative group  
<sup>b</sup> $p < 0,05$  Compared with kaptopril group



**Figure 2.** Effect Of CAe to persentation decrease of diastole blood pressure of cyclosporine induced mice  
<sup>a</sup> $p < 0,05$  Compared with negative group  
<sup>b</sup> $p < 0,05$  Compared with kaptopril group



**Figure 3.** Effect of CAe to MDA levels of cyclosporine induced mice.  
<sup>a</sup> $p < 0,05$  Compared with negative group  
<sup>b</sup> $p > 0,05$  Compared with Vitamin C group



**Figure 4.** Effect of CAe to catalase activity of cyclosporine induced mice.  
<sup>a</sup> $p < 0,05$  Compared with negative group  
CAe = *Cnidoscolus aconitifolius* leaf extract

## Conclusion

Based on the results of the study it can be concluded that CAe can reduce the blood pressure of hypertensive rats induced by cyclosporine. CAe (500 and 1000mg / kgBW) can reduce systolic and diastolic blood pressure that is not significantly different from the captopril group. CAe (1000mg / kgBW) reduced MDA levels by  $2.15 \pm 0.15$  nmol / mL and increased catalase activity by  $161.79 \pm 3.51$  units / mL.

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