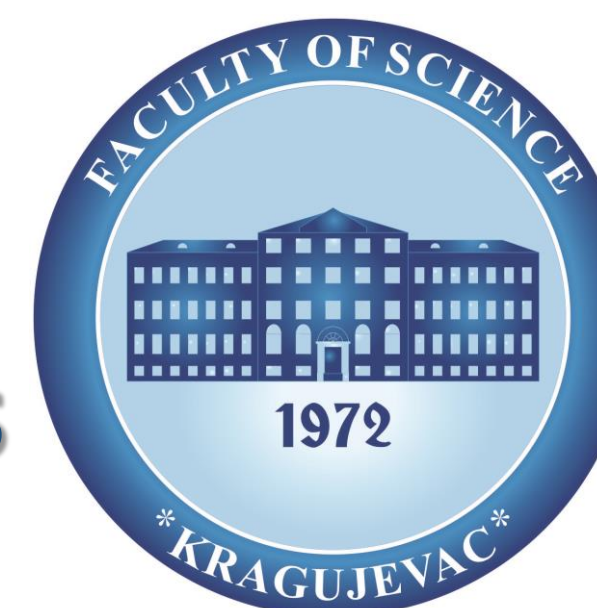




Effect of new Pt(IV) complexes and co-treatment with resveratrol on the antioxidant capacity of rat erythrocytes



Milica G. Paunović^{1*}, Miloš M. Matić¹, Ana D. Obradović¹,
Verica V. Jevtić², Branka I. Ognjanović¹

¹University of Kragujevac, Faculty of Science, Department of Biology and Ecology, Kragujevac, Serbia

²University of Kragujevac, Faculty of Science, Department of Chemistry, Kragujevac, Serbia

*e-mail: milica.paunovic@pmf.kg.ac.rs

INTRODUCTION

Chemotherapy's low efficacy and adverse consequences prompted researchers to seek alternatives for novel anticancer drugs. Although they have remarkable anticancer potential, platinum(IV) complexes containing esters of ethylenediamine-N,N'-di-S, and S-(2,2'dibenzyl)acetic acid also cause damage to healthy cells. This study aims to investigate the impact of new platinum(IV) complexes (C1 and C2) containing ethyl-, and propyl- esters of ethylenediamine-N,N'-di-S, S-(2,2'dibenzyl) acetic acid and co-treatment with resveratrol (Res) on antioxidant capacity of erythrocytes isolated from treated rats.

MATERIAL AND METHODES

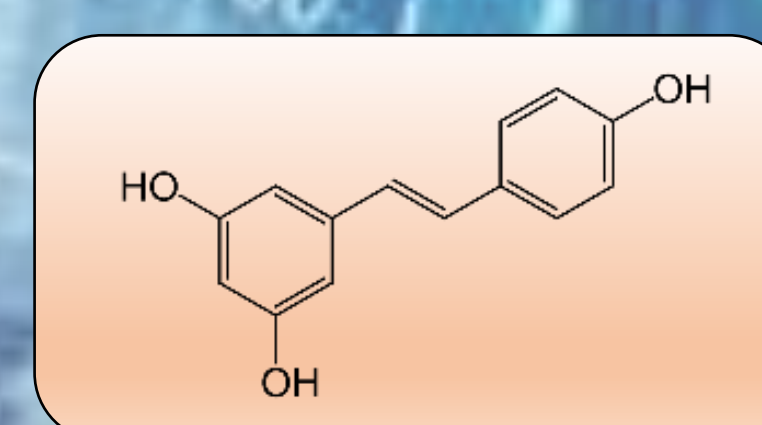
For this purpose, the activities of the following enzymes were measured in the obtained erythrocytes lysates: catalase (CAT), superoxide dismutase (SOD), glutathione peroxidase (GSH-Px), glutathione reductase (GR), and glutathione-S-transferase (GST), as well as the concentration of reduced glutathione (GSH). Each of the six experimental groups included six Wistar albino female rats that were randomly assigned. The investigated chemicals were intraperitoneally injected as a single dose of Pt(IV) complexes C1 and C2 (10 mg/kg) or Res (25 mg/kg) alone or in combination.

CAT, SOD, GSH-Px,
GR, GST, GSH

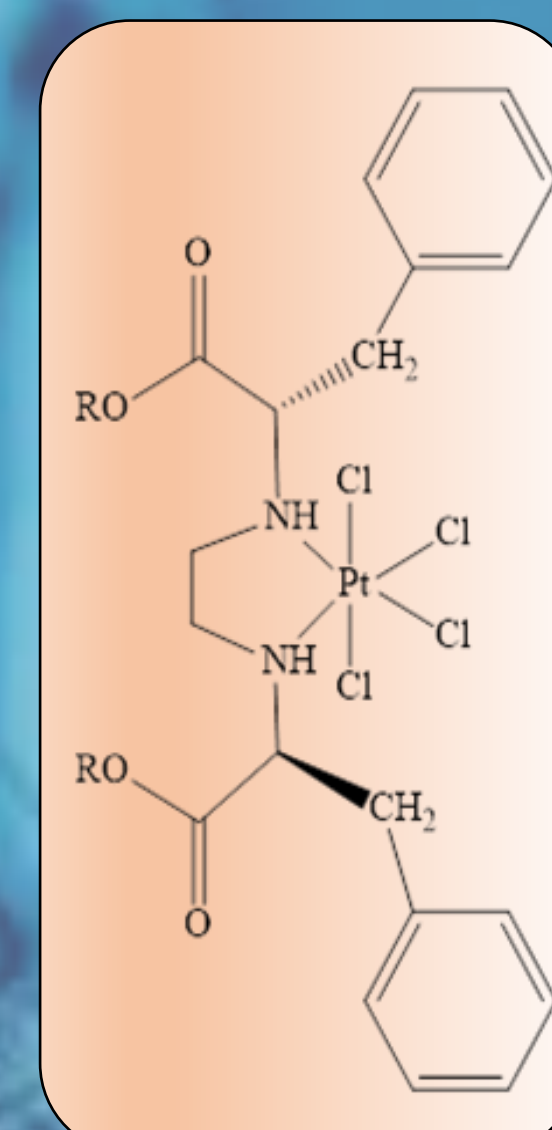


RESULTS

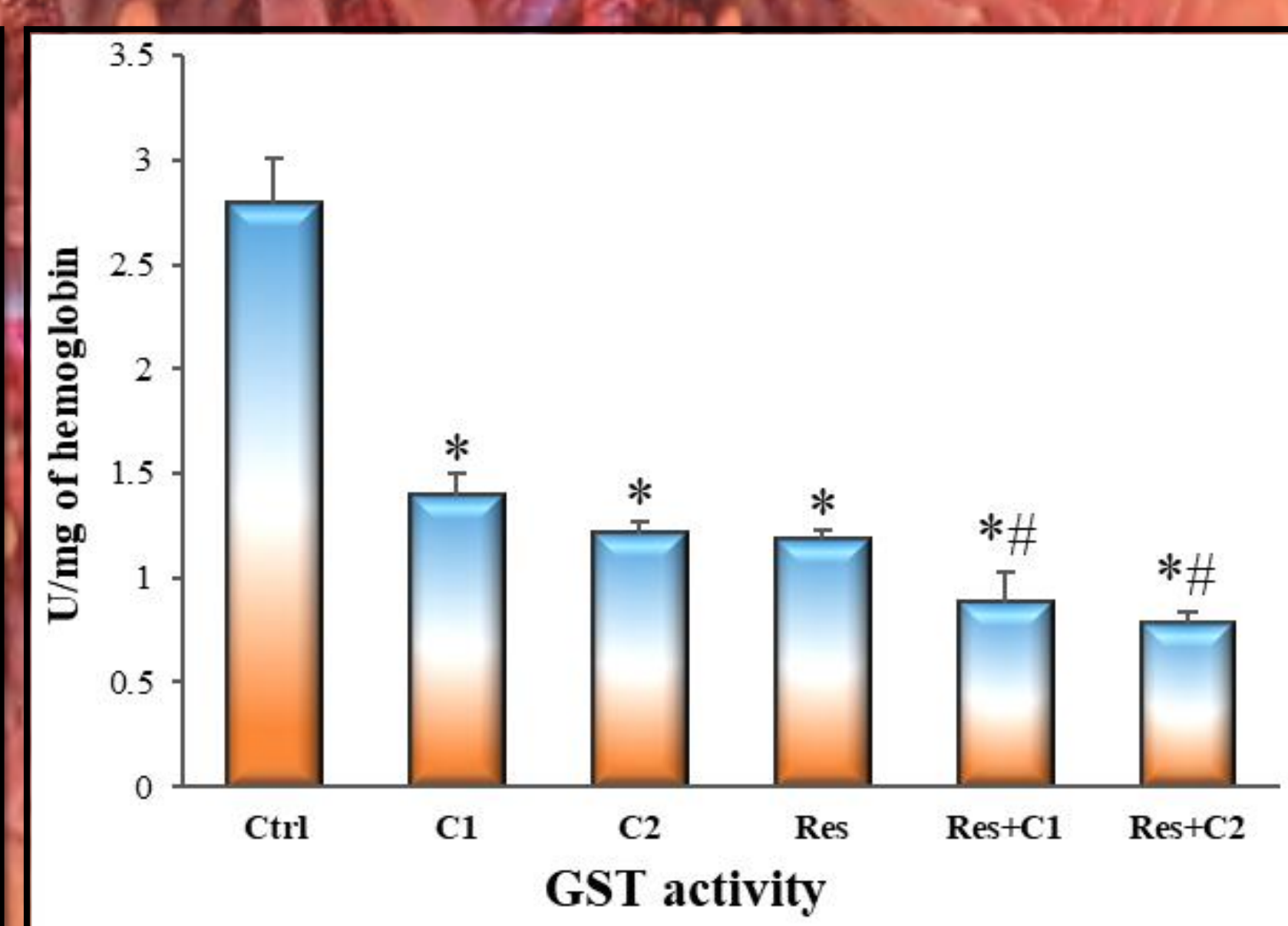
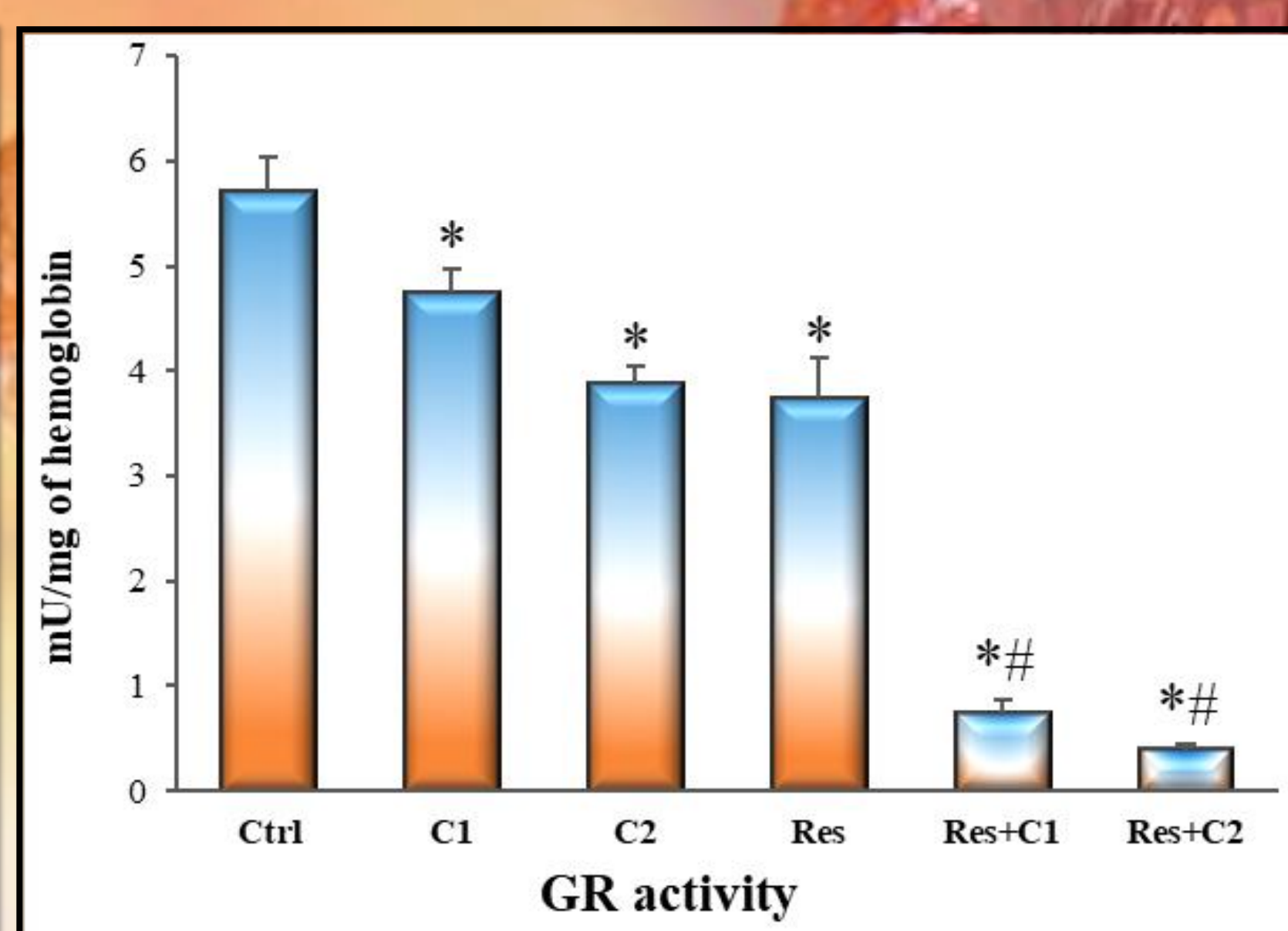
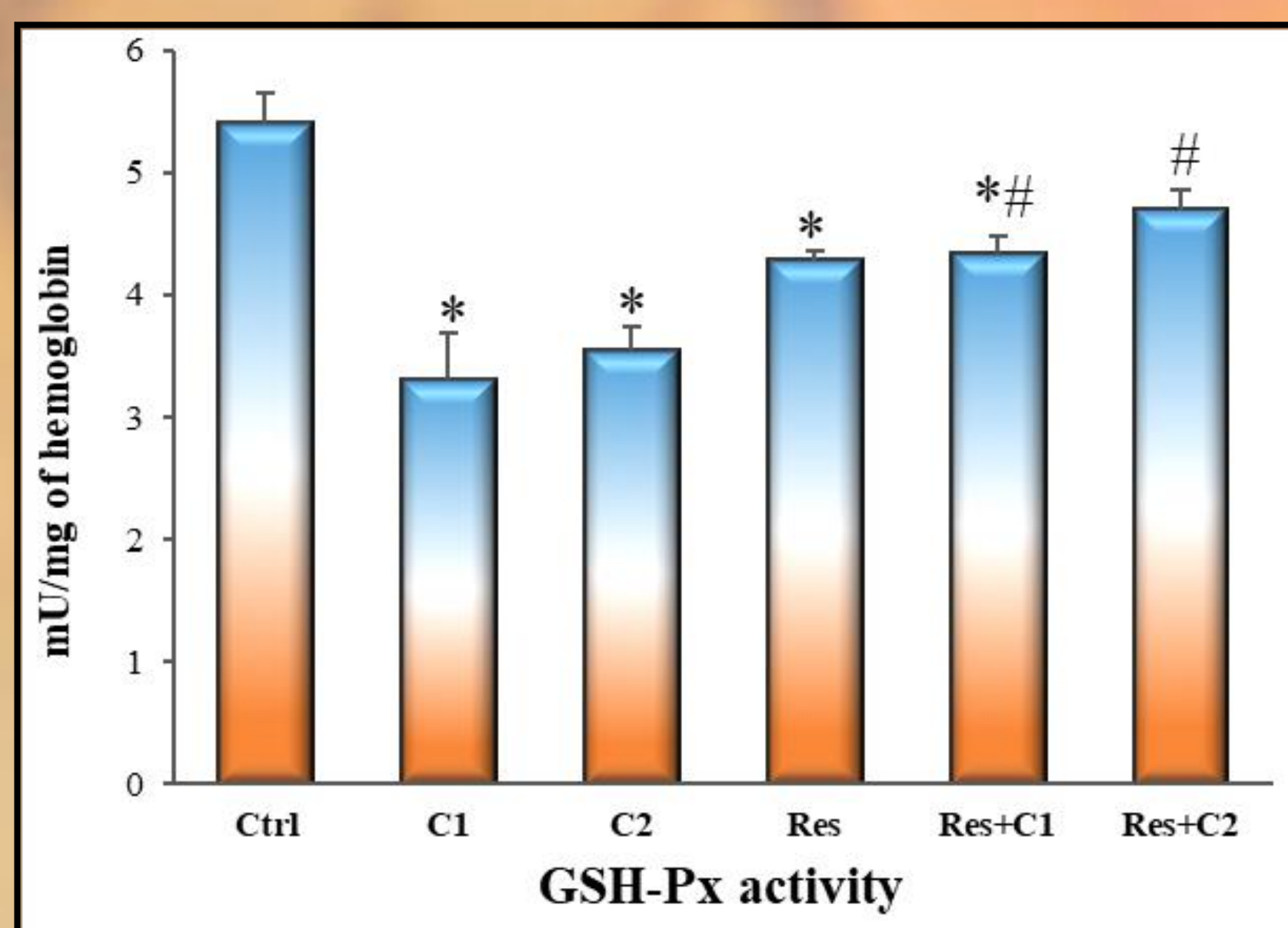
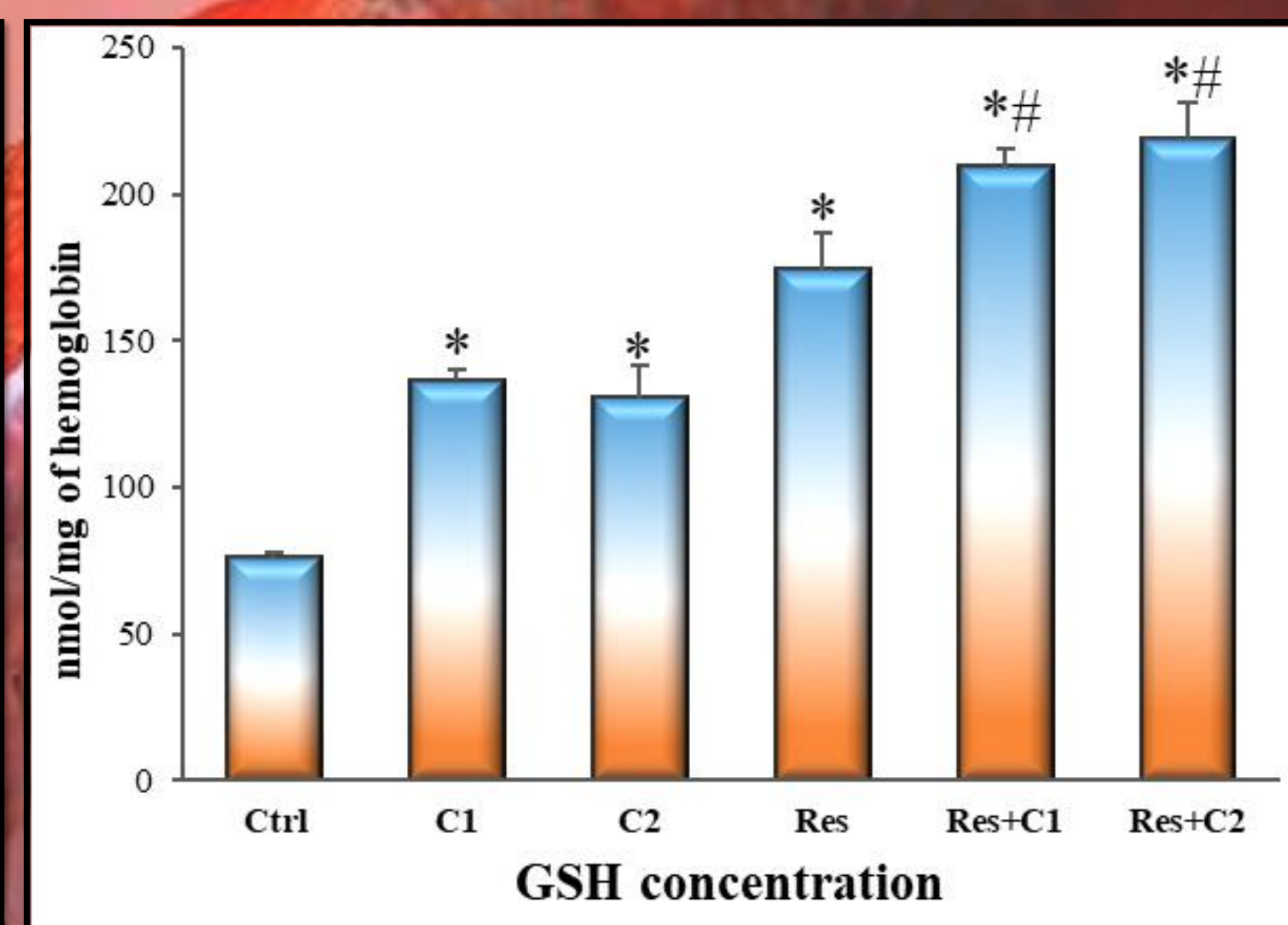
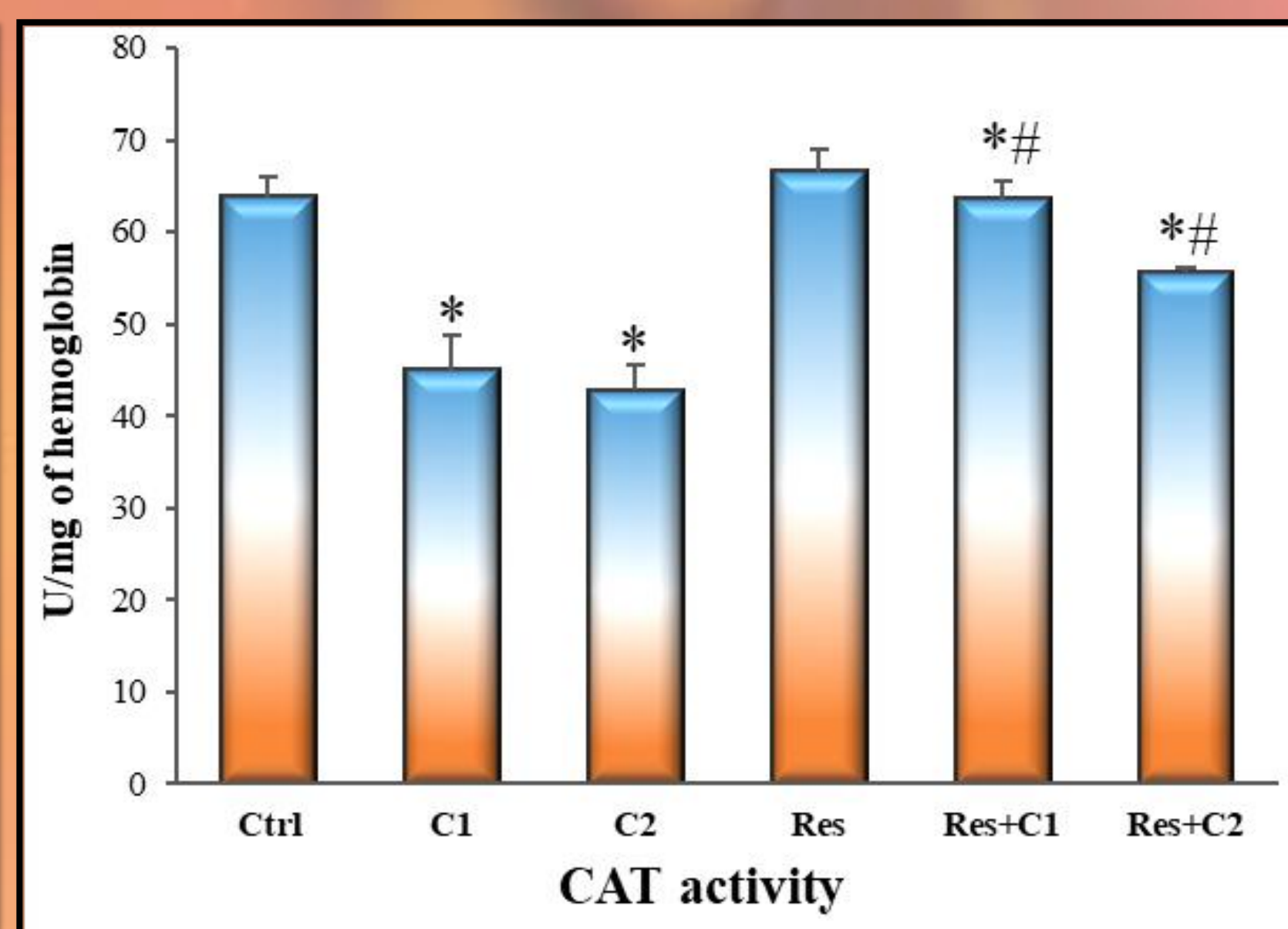
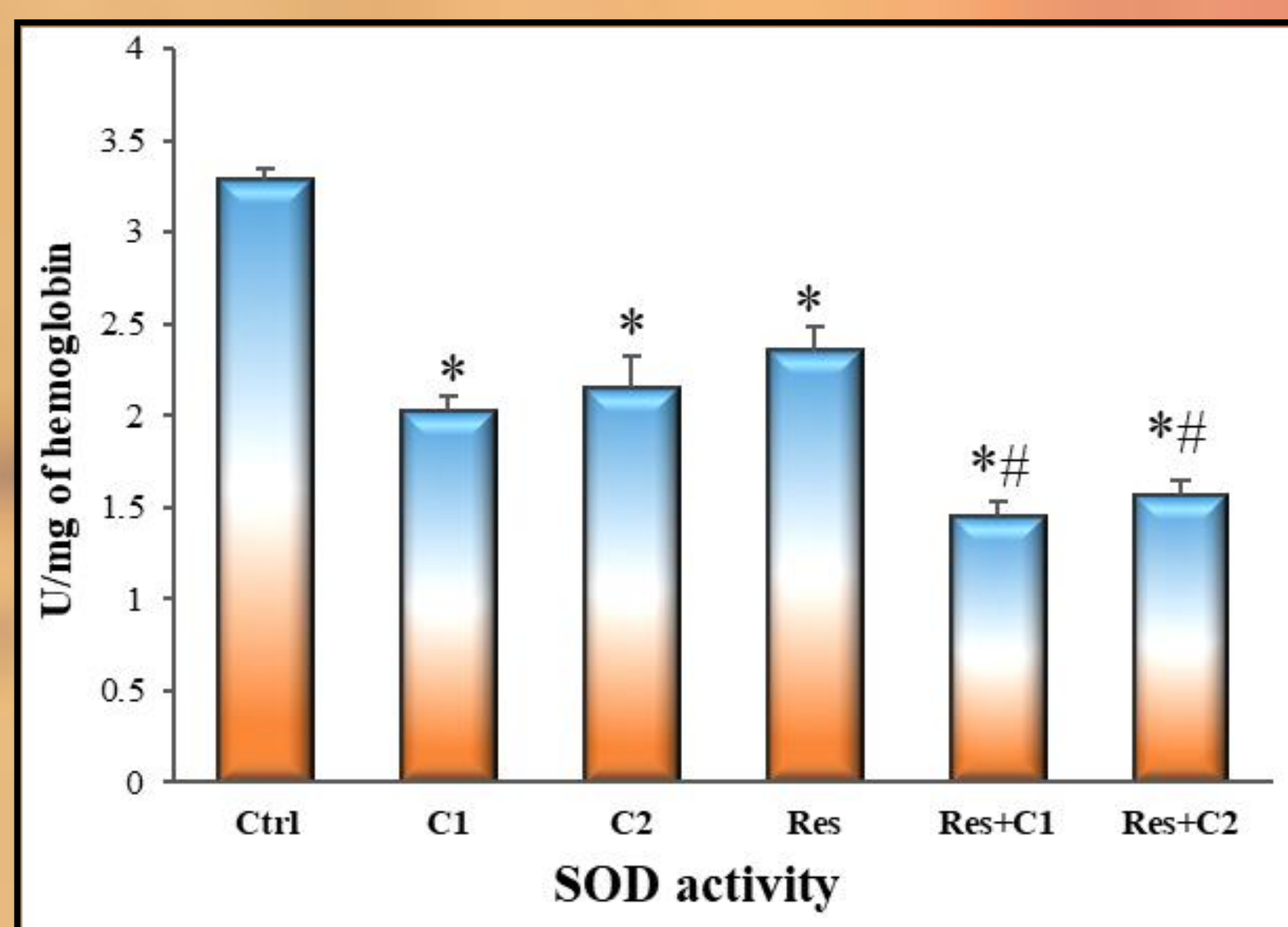
All three investigated compounds caused changes in measured parameters. Activities of all measured enzymes were decreased after treatment with complexes but also with resveratrol when compared to control. At the same time, the concentration of GSH was significantly increased compared to the control after specified treatments. Nevertheless, co-treatment raised the activities of CAT and GSH-Px compared to single treatments and reversed them to near-normal values measured in control. Regarding SOD, GR and GST, their activities were additionally lowered after combined treatment than single treatment and control. Further, the concentration of GSH was remarkably increased after combined treatments.



+



R = ethyl- (C1),
propyl- (C2),



CONCLUSION

The obtained results indicate the ability of novel Pt(IV) complexes to influence antioxidant capacity inducing redox disbalance in erythrocytes. Res also caused similar but slight changes, while co-treatment on the one hand alleviated, as well enhanced the effects of single treatments. Therefore, these findings may contribute to further examination involving the elucidation of the mechanisms of action of investigated compounds.

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