



Attenuation of aluminum chloride-induced Alzheimer's pathophysiology by Rajata Bhasma in Wistar rats

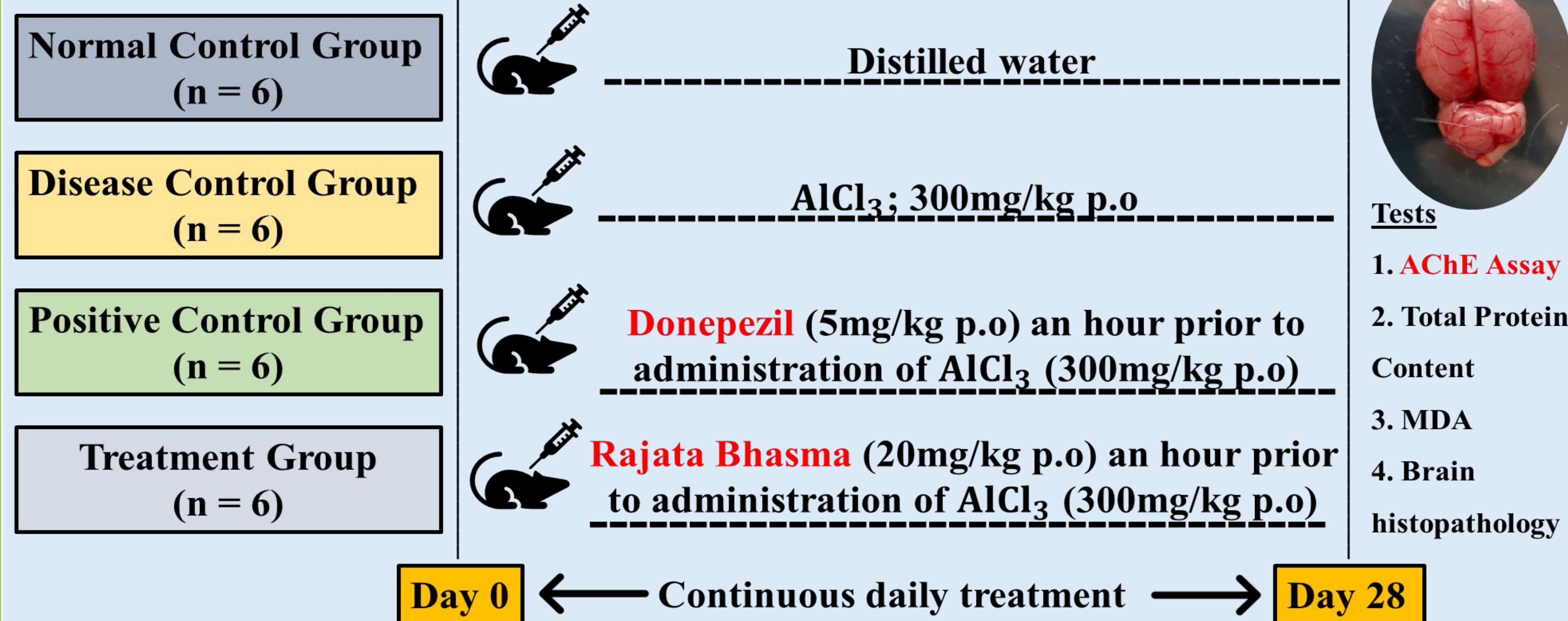
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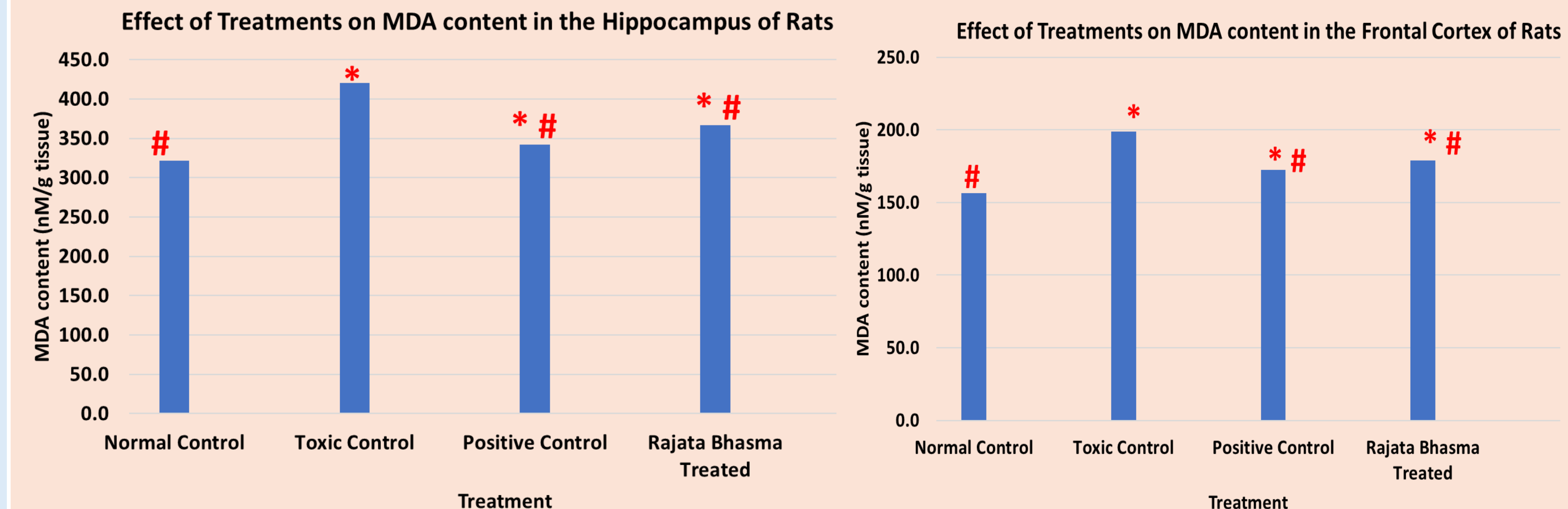
Introduction

- Rajata Bhasma (RB), an Ayurvedic herbo-metallic formulation, has been historically used for neurological ailments.
- Alzheimer's disease (AD), is characterized by progressive neuronal loss, cognitive decline, and memory impairment.
- AlCl₃ is a neurotoxin which induces the oxidative stress and cognitive decline in brain.
- The hippocampus and frontal cortex brain areas the critical sites responsible for memory and decision making respectively.
- Treatment options for AD are currently limited and have adverse side effects.

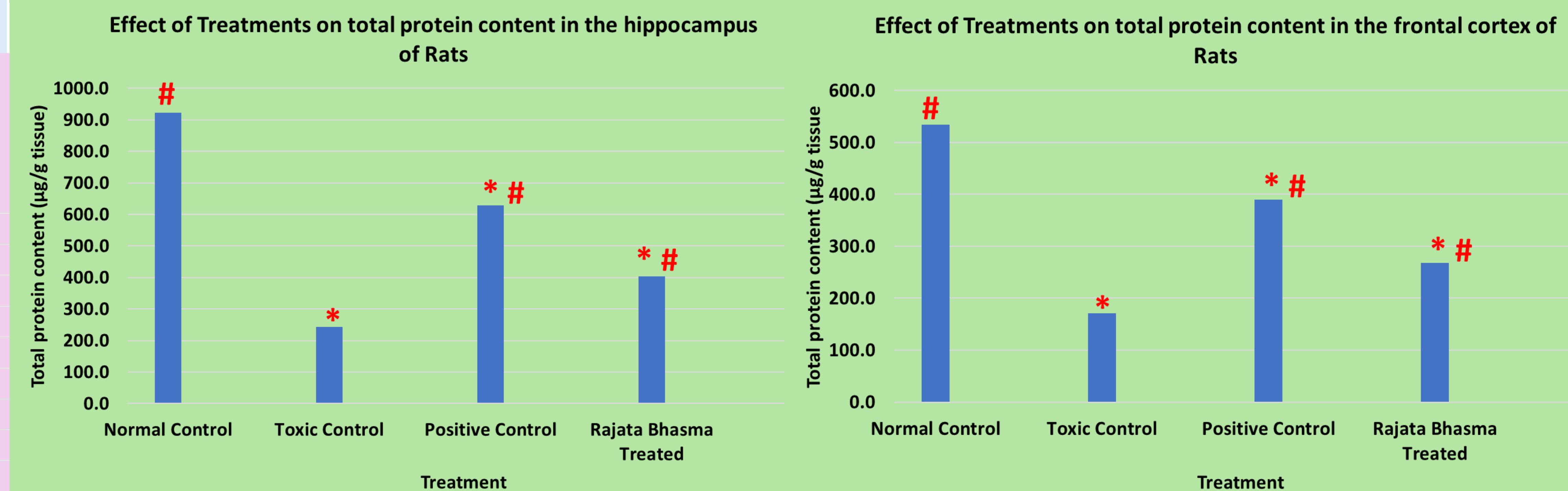
Methodology



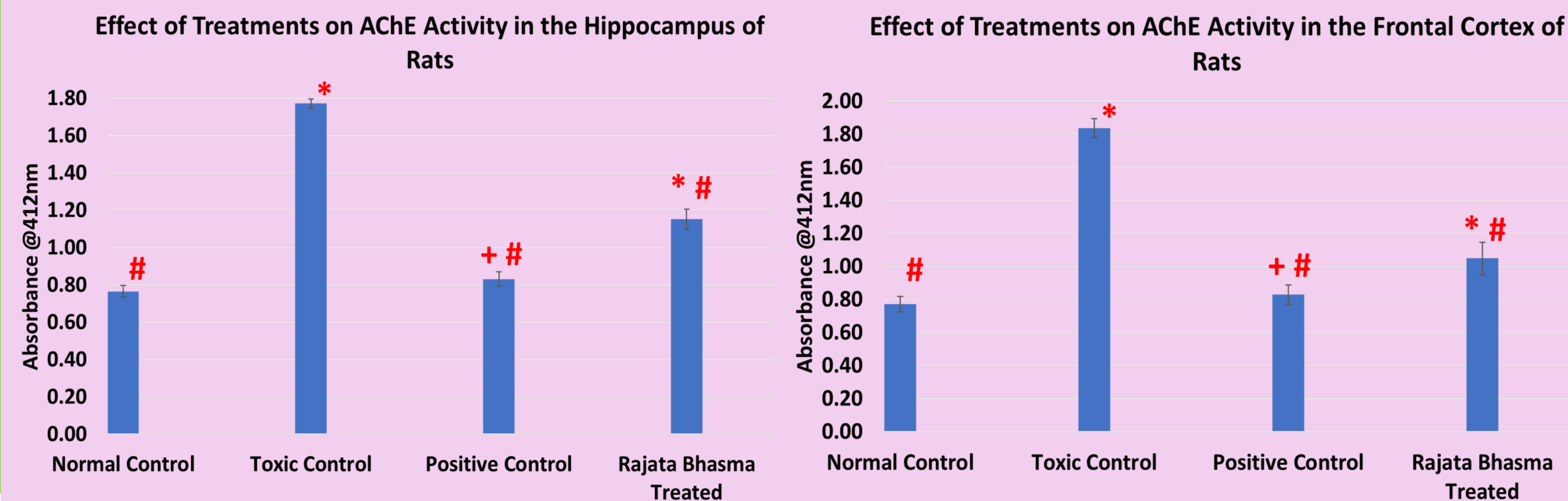
Results – Malondialdehyde Content



Results – Total Protein Content



Results – Acetylcholinesterase Activity



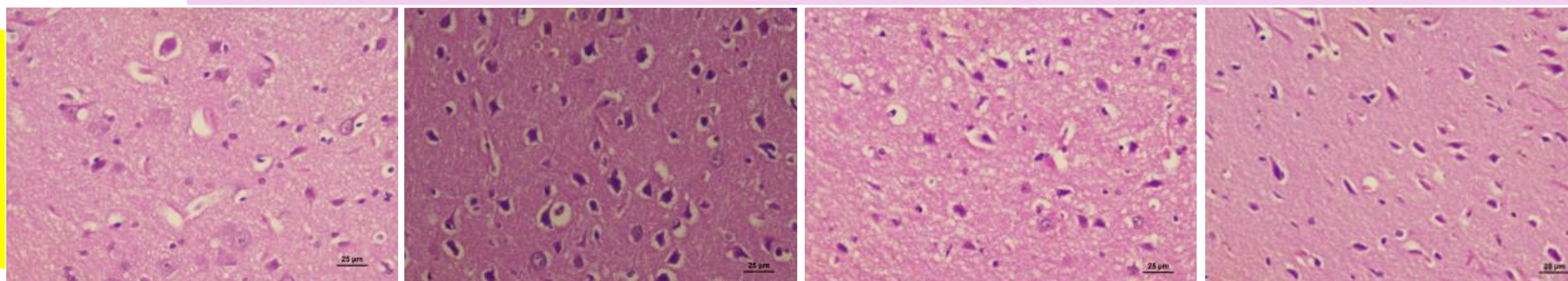
Conclusions

- RB demonstrated promising neuroprotective effects, significantly reducing AChE activity and MDA levels while restoring total protein content, indicating its potential in mitigating oxidative stress and cholinergic dysfunction.
- Donepezil treatment effectively reversed these changes, confirming its well-established neuroprotective and antioxidant properties.

References

- Shunan, Di, Miao Yu, HuiBo Guan, and Yanyan Zhou. "Neuroprotective effect of Betalain against AlCl₃-induced Alzheimer's disease in Sprague Dawley Rats via putative modulation of oxidative stress and nuclear factor kappa B (NF-κB) signaling pathway." *Biomedicine & Pharmacotherapy* 137 (2021): 111369.

Histopathological Results by Hematoxylin and Eosin (H & E) Staining



Normal Control

Disease Control

Positive Control

RB Treated group