



Neuroprotective Potential of *Salicornia brachiata* Against Aluminiumchloride-induced Alzheimer's Disease in Wistar rats

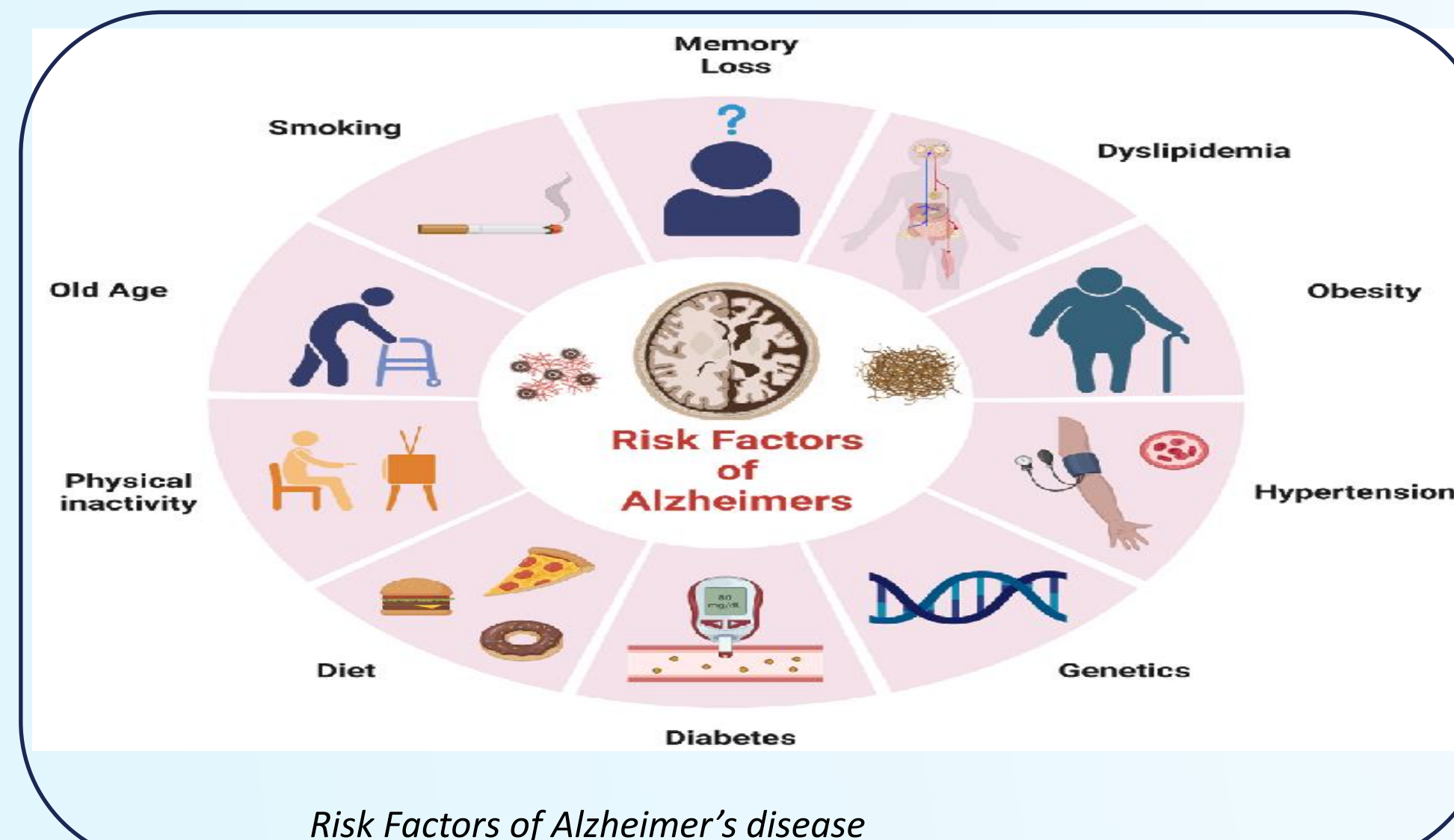
K.G.Sanath Madushantha¹, U.H.poornima Jeewanthi¹, Nilaksha Navod¹, D.Perera¹, N.Jayathilaka¹, P.A.Paranagama¹

¹Department of Chemistry, Faculty of Science, University of Kelaniya, Sri Lanka



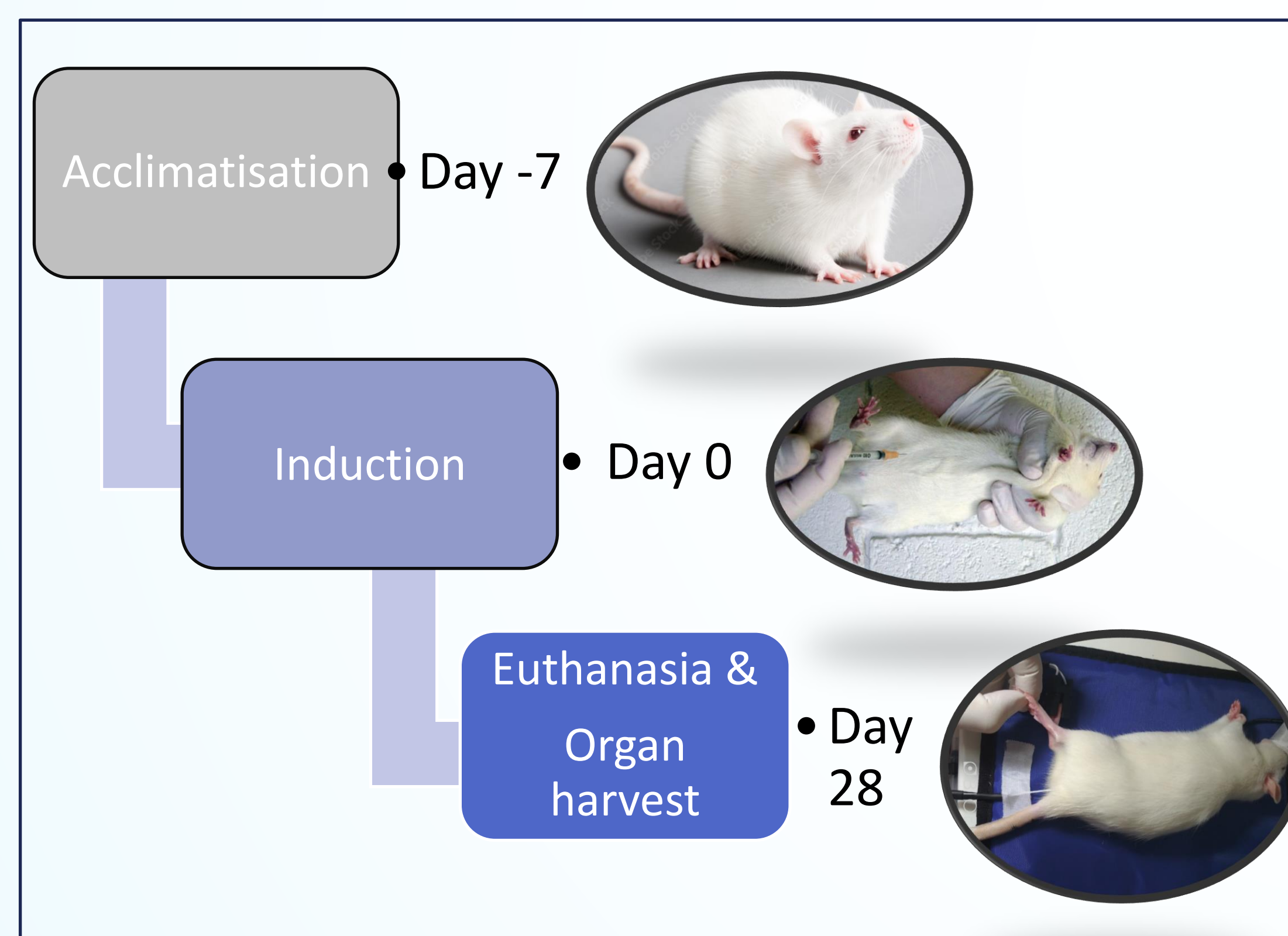
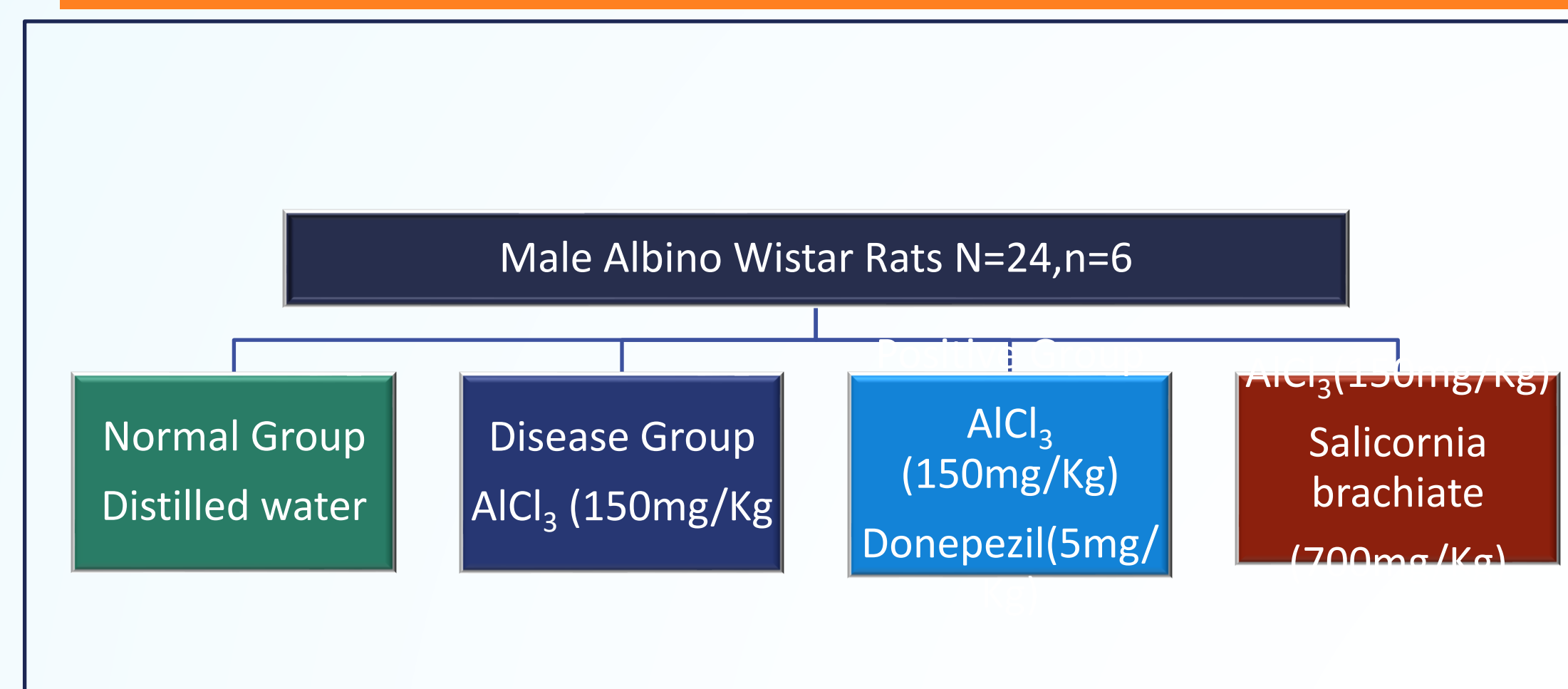
Introduction

Alzheimer's disease (AD) is a progressive neurodegenerative disorder characterized by memory loss, cognitive decline, and neuronal damage. Its pathogenesis is closely linked to oxidative stress and cholinergic dysfunction, which accelerate neurodegeneration. *Salicornia brachiata*, a halophyte rich in bioactive phytochemicals, has demonstrated antioxidant and therapeutic potential in preliminary studies. However, its neuroprotective properties remain underexplored.



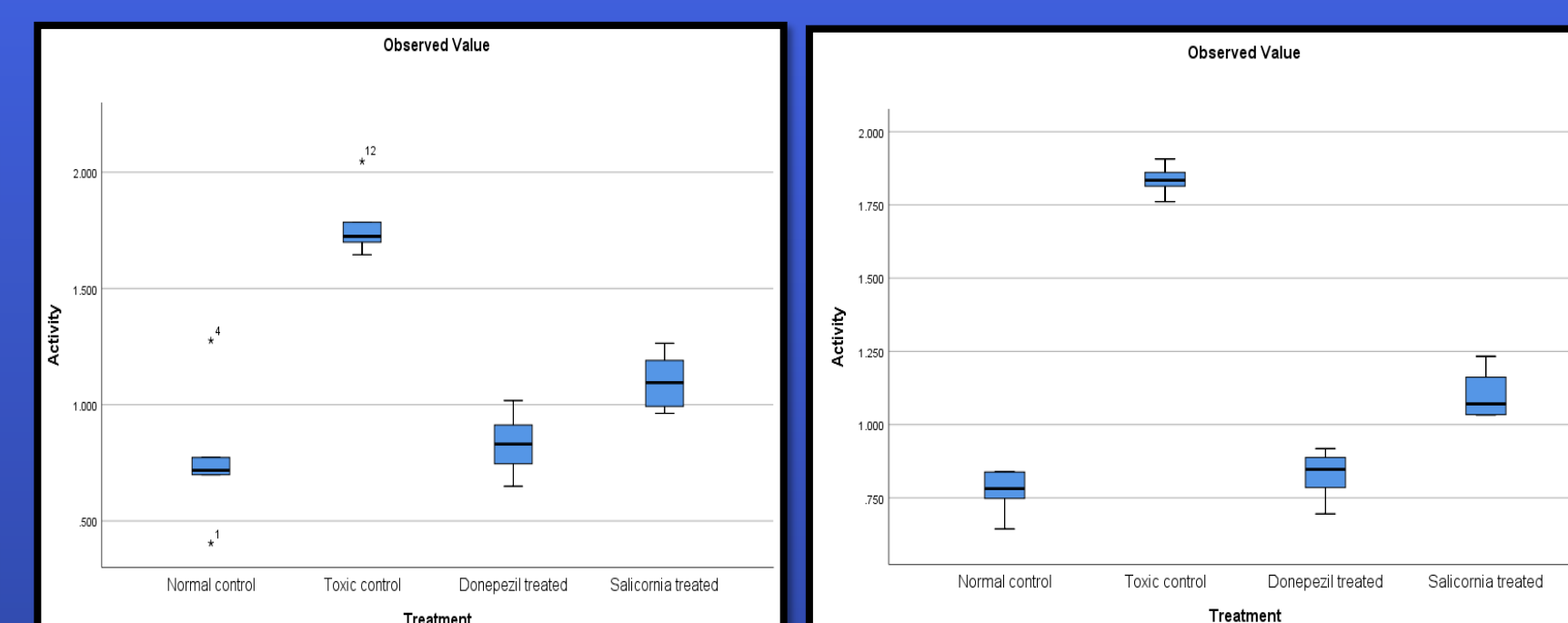
- To evaluate the neuroprotective effect of *Salicornia brachiata* against AlCl_3 -induced Alzheimer's disease in Wistar rats.
- To analyze biochemical parameters (AChE, TBARS, total protein) in the hippocampus and frontal cortex.
- To assess histopathological changes and compare the effects with the standard drug donepezil

Methodology

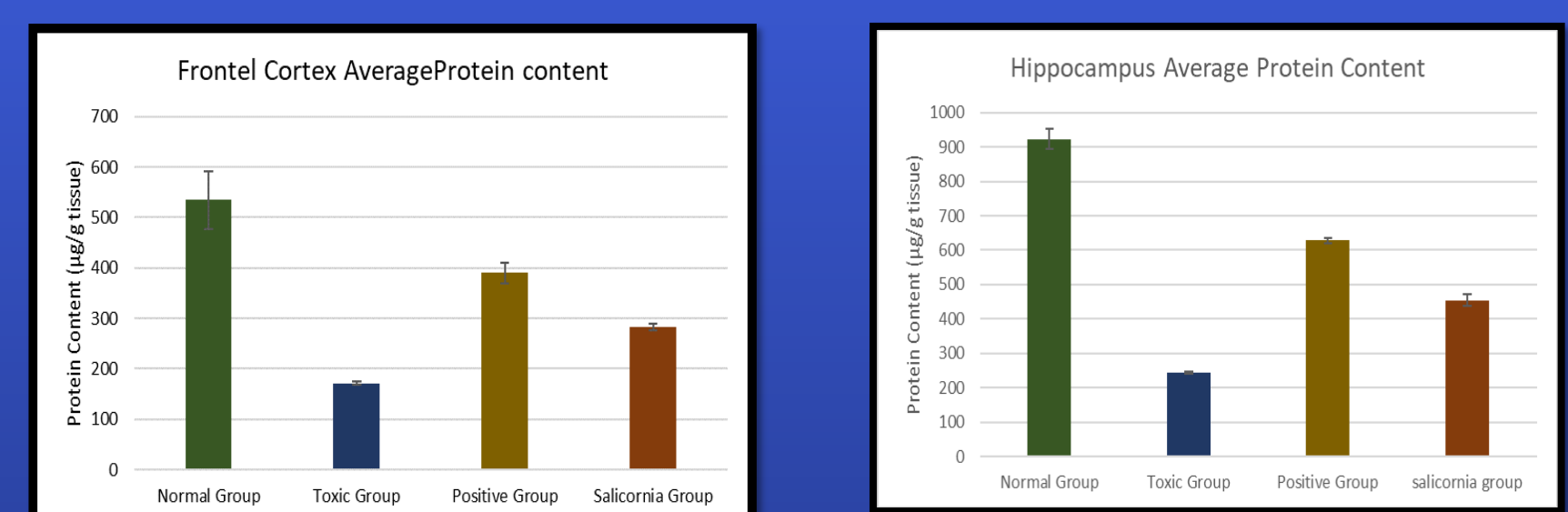


Results

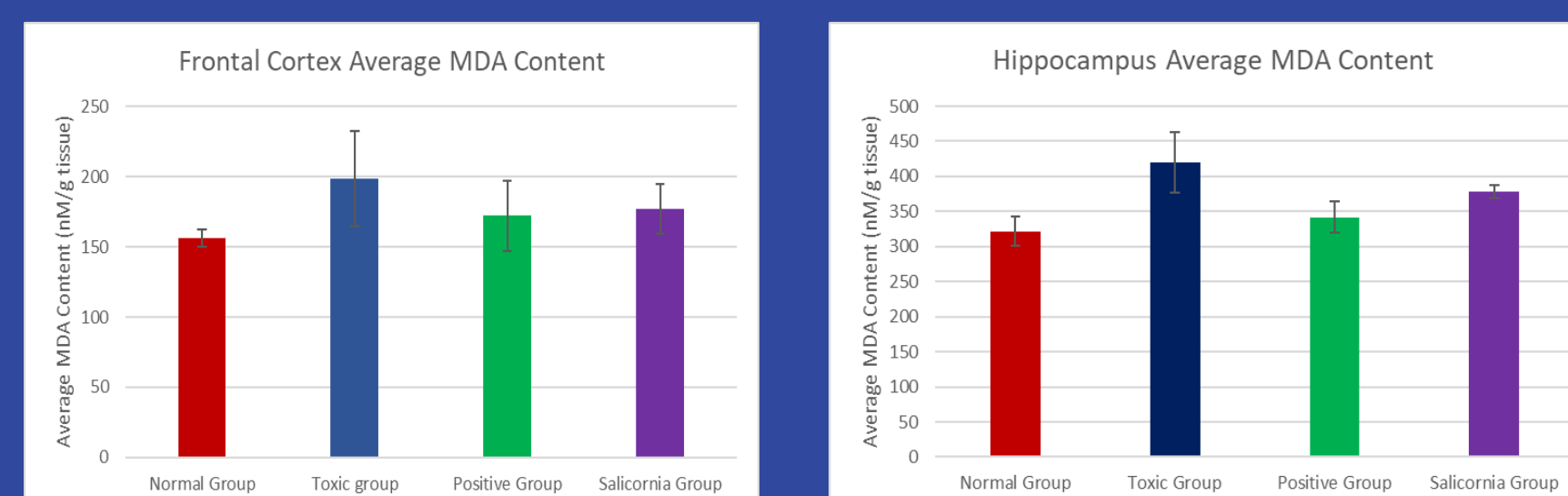
AChE Activity of Frontal Cortex and hippocampus



Average Protein Content of F.Cortex and Hippocampus



Average MDA content Of F.Cortex and Hippocampus



Conclusion

- *Salicornia brachiata* demonstrated neuroprotective activity against Alzheimer's disease, evidenced by reduced MDA content, improved average protein levels, and lowered AChE activity compared to the disease group.
- The effects were comparable to Donepezil, the positive control, indicating its potential as a natural therapeutic candidate.
- These findings suggest that *S. brachiata* could contribute to developing safer, plant-based interventions for neurodegenerative disorders.

Acknowledgements

This research was funded by the Asian Development Bank (grant no. CRG/R2/RJ1)

References

- Ekanayake S, Egodawatta C, Attanayake RN, Perera D. From saltpan to saucepan: *Salicornia*, a halophytic vegetable with an array of potential health benefits. Food Front. 2023;4(2):641-676. doi: 10.1002/fft2.214
- International Organization for Standardization. ISO 6579-1:2017, Microbiology of the food chain—Horizontal method for the detection, enumeration, and serotyping of *Salmonella*—Part 1: Detection of *Salmonella* spp. ISO; 2017.
- Kurian A, Thiripuranathar G, Paranagama P. Determination of total phenolic content and antioxidant activity of *Borassus flabellifer* Linn. Fruit pulp collected from several parts of Sri Lanka. Int J Pharm Sci Res. 2017;8(6):2701-2705. doi:10.13040/IJPSR.0975-8232.8(6).2701-05