

## REVIEWER'S REPORT

Manuscript No.: IJAR-53004

**Title: Cognitive-Enhancing Effect of Ethyl acetate fraction of *Erythrophleum ivorense* stems bark against Ketamine-induced Memory Impairment in Mice**

### Recommendation:

**Accept as it is** .....

Accept after minor revision.....

Accept after major revision .....

Do not accept (*Reasons below*) .....

Rating	Excel.	Good	Fair	Poor
Originality			✓	
Techn. Quality			✓	
Clarity		✓		
Significance		✓		

Reviewer Name: Dr Aamina

### Reviewer's Comment for Publication.

The manuscript presents a well-structured and scientifically relevant investigation into the cognitive-enhancing effects of the ethyl acetate fraction of *Erythrophleum ivorense* (EAFEI) in a murine model of ketamine-induced memory impairment. The topic addresses a critical area in neuropharmacology and contributes meaningfully to the growing interest in plant-derived therapeutics for managing Alzheimer's disease (AD) and related cognitive disorders.

The abstract succinctly summarizes the rationale, methodology, findings, and implications of the study. It clearly outlines the use of ketamine to model memory impairment and the comparison with donepezil, a standard treatment for AD, thereby establishing a credible experimental framework. The reported improvements in step-through latency, reduction in acetylcholinesterase (AChE) activity, and decreased oxidative stress markers such as malondialdehyde (MDA) in extract-treated animals provide robust support for the therapeutic potential of EAFEI.

The introduction offers a comprehensive overview of Alzheimer's disease pathology, the limitations of current pharmacotherapy, and the rationale for exploring herbal alternatives. The discussion of amyloid- $\beta$  plaques, neurofibrillary tangles, cholinergic deficits, and oxidative imbalance presents a sound background for the reader. The link between oxidative stress, cholinergic dysfunction, and memory impairment further supports the pharmacological targets assessed in the study.

The experimental design, which includes behavioral assessment through passive avoidance testing and biochemical analysis of brain tissue, allows for a multidimensional evaluation of cognitive function and underlying mechanisms. The statistical significance of the results reinforces the reliability of the findings.

Overall, the manuscript presents a compelling case for the cognitive-enhancing and neuroprotective potential of *Erythrophleum ivorense* ethyl acetate fraction. The study adds value to the literature on

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natural product-based interventions in neurodegenerative disease management and demonstrates scientific merit, clarity, and coherence in its presentation.