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RESEARCH ARTICLE
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EVALUATION OF ANTIEPILEPTIC ACTIVITY OF CASSIA AURICULATA FLOWER EXTRACTS IN MICE

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Abstract

Objective: To evaluate the antiepileptic activity and estimate brain biogenic amines in mice treated with ethanolic extracts of Cassia auriculata flowers (EECA).
Methods: Anticonvulsant activities of EECA were assessed using Maximal Electroshock Seizure (MES), Pentylenetetrazole (PTZ), and Strychnine-induced seizure models in mice. Biogenic amine levels were estimated via HPLC.
Results: EECA significantly reduced tonic hind limb extension in the MES model and delayed seizure onset in PTZ and Strychnine models. Brain dopamine and noradrenaline levels increased post-EECA treatment. Motor coordination tests indicated mild impairment at anticonvulsant doses.
Conclusion: EECA demonstrates dose-dependent antiepileptic activity, likely due to flavonoids and antioxidant phytoconstituents.

Keywords: Epilepsy, Cassia auriculata, Anticonvulsant, MES, PTZ, Strychnine, Dopamine, Noradrenaline

Introduction

Epilepsy affects a significant proportion of the global population. While antiepileptic drugs are effective, they often have side effects. Cassia auriculata is traditionally used for various ailments and contains phytoconstituents like flavonoids with potential CNS activity.

Objective

To establish the antiepileptic efficacy of Cassia auriculata flower extract in mice through various seizure models and neurotransmitter quantification.

Materials and Methods

-Animals: Albino mice (25–35g) of either sex.
- Extract Preparation: Flowers were shade dried, powdered, and extracted with 50% ethanol.
- Phytochemical Screening: Confirmed presence of alkaloids, flavonoids, tannins, and terpenoids.
- Acute Toxicity: Safe up to 2000 mg/kg. Experimental doses: 250 mg/kg and 450 mg/kg.
- Models: MES, PTZ (60 mg/kg), and Strychnine (2 mg/kg).
- Neurotransmitter Estimation: HPLC used to analyze dopamine and noradrenaline levels.
- Statistical Analysis: ANOVA followed by Dunnett's test; significance at $p<0.05$.

Results
- MES Model: EECA significantly reduced hind limb extension (450 mg/kg > 250 mg/kg).
- PTZ Model: Delayed seizure onset and reduced mortality.
- Strychnine Model: Prolonged onset of convulsions and increased survival.
- Motor Coordination: Reduced fall-off time indicated mild sedative effects.
- Biogenic Amines: Elevated dopamine and noradrenaline levels in EECA groups.

Discussion
The extract's antiepileptic effect may be linked to GABAergic modulation and antioxidant activity. EECA's protective role across multiple seizure models indicates broad-spectrum efficacy. Motor impairment observed suggests CNS depressant activity at higher doses.

Conclusion
EECA shows promising antiepileptic activity in experimental models, supporting its traditional use. Further pharmacological studies and clinical evaluations are recommended.

Ethical Considerations
All experiments were conducted under institutional ethical guidelines. CPCSEA and IAEC approvals obtained.

Conflicts of Interest
The authors declare no conflict of interest.

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