

Evaluation of Bioactive Constituents of *Matricaria Chamomilla*

Effects of *Matricaria Chamomilla* on Experimental Mice

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ABSTRACT

Introduction: *Matricaria chamomilla* is also called chamomilla, it is one of the herbal medicines used by ancients. It belongs to Compositae family and Belonging to the member of Asteraceae. The chamomile dried flowers have many terpenoids and flavonoids that provide significant medicinal properties (Abdel Dayem *et al.*, 2023). Essential oils of chamomile contain essential oils which are used extensively used in cosmetics and aromatherapy (practice of using oils for therapeutic purposes) (Abeliovich & Gitler, 2016). *Matricaria chamomilla* contain many Chemical constituents include flavonoids, coumarins, volatile oils, terpenes, organic acids, polysaccharides, and others. These compounds are highly significant and possess anticancer, anti-infective, anti-inflammatory, antithrombotic, antioxidant, gastrointestinal diseases, liver disorders, hypoglycaemic, antihypertensive, antidepressant, neuroprotective activities, among others. Chamomile is a most commonly used herbal traditional medicine all around the world (Adelodun *et al.*, 2021).

Neurodegenerative diseases are become common health issues globally, this prompting the search for effective therapeutic interventions. This thesis study aimed to find out the bioactive constituents of *Matricaria chamomilla* and identify the neuroprotective effects of *Matricaria chamomilla* extract, the plant extract is applied on experimental mice (Agidew, 2022).

Methods and Materials: Phytochemical analysis of plant extract showed the presence of various bioactive compounds, this including phenolics, flavonoids, saponins, and terpenoids. Subsequently, an experimental study was performed using mice. Mice are divided into four different groups. These including: a normal control group that receiving saline, a pathological control group that receiving $AlCl_3$, a treatment group administered *Matricaria chamomilla* extract, along with $AlCl_3$ and a positive control group that receiving a standard drug, Donepezil-10, along with $AlCl_3$. After seven day's duration, the mice were subjected to the respective interventions, and various neuroprotective parameters were assessed. Neuroprotective factors were assessed through cognitive function assessments and biochemical evaluations of brain and heart tissues to evaluate neurotoxicity and the effects of therapy.

Result and Discussion: Results showing that treatment with *Matricaria chamomilla* extract led to a significant amelioration of neurotoxicity, as evidenced by improved cognitive function. Assessment of biochemical parameters on brain and heart tissues were done. The findings suggest that *Matricaria chamomilla* extract possesses important neuroprotective properties and could serve as a promising therapeutic agent for the management of neurodegenerative diseases.

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