

Spasmolytic effect of *Calotropis gigantea* tincture on histamine and acetyl choline receptors

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Abstract:

Objectives: The study was designed to evaluate the spasmolytic activity of *C.gigantea* tincture (CgT) mediated through Histamine[H1] and Muscarinic [M3] receptor on Isolated smooth muscle preparation. The study also focused to reduce the dose of allopathic medicine in combination with homeopathic tincture. Since, the combination reduces the dose of standard than individual dose given alone.

Methodology: The isolated tissue preparation was used for the assessment of antispasmodic activity using a Kymograph. Acetyl choline and histamine are used as spasmogens and percentage inhibition of muscle contraction is analyzed with mother tincture and different dilutions of 3C, 6C and 12C. Dicylomine and pheniramine were taken as standard drugs for Acetylcholine and histamine respectively. The results were evaluated by percentage inhibition of smooth muscle contraction and the data were expressed as Mean \pm SEM. Significance was assessed by Student's 't' test or ANOVA followed by Dunnet's test. The minimum level of significance was fixed at $P < 0.05$. The *Calotropis gigantea* tincture inhibited both Ach and histamine induced contractions.

Results and discussions: The *C. gigantea* tincture can significantly inhibit the contraction induced by spasmogens Ach and histamine. Among the different dilutions of CgT such as M.T, 3C, 6C, 12C, the 12C possess more inhibition in Ach induced contractions when compared with other dilutions and standard dicyclomine. The CgT



6C shows more inhibition in histamine induced contractions when compared with the other dilutions and standard drug pheniramine. This is a supportive evidence for homeopathic principle of potentiation. The spasmolytic activity was found to be more when Dicyclomine used in combination with Cg T. This result may be due to the synergistic effect of CgT on spasmolytic activity of Dicyclomine. This combination reduces the dose of Dicyclomine than individual dose given alone.

Conclusion: From the study, it was inferred that, *Calotropis gigantea* tincture possesses anti spasmodic activity due to the property of depolarization produced by Ach on isolated smooth muscle. The interpretation of Ach results indicated could stimulate the muscarinic Ach Receptor and induced depolarization. Thus, we can safely say that *C. gigantea* may be potential candidate for development of future anti- spasmodic compounds. However, still further studies and standardisation of the plant research may be required to develop them as medicine.

Keywords: Antispasmodic, *Calotropis gigantea*, Acetylcholine, Histamine, Dicyclomine