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# Determination of the antidepressant effect of mirtazapine augmented with caffeine using Swiss-albino mice

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Depression is a serious health condition affecting an estimate of 350 million people worldwide. Monotherapy with antidepressants as first line treatment however is found to have limited benefits as compared to augmentation therapy. Psychoactive agents such as caffeine, when added to the antidepressants are found to have positive effects with depression by acting as an antagonist to adenosine receptors. Male Swiss albino mice were grouped into six, first three groups with arbitrary doses of the combination of mirtazapine and caffeine and last three control groups being the untreated, mirtazapine-treated and caffeine-treated groups.

Immobility time of the mice when subjected to Forced Swim Test and Tail Suspension Test was used to measure the antidepressant effect of the combination therapy under single blind observation. SEM and ANOVA showed that there is no significant difference in the mean immobility time in the tail suspension test of the six groups [$F_{5,100} = 1.27$, $P = 0.281$] and no significant difference in the mean immobility time in the forced swim test of the six groups [$F_{5,100} = 1.27$, $P = 0.281$]. The results are showed in Fig. 1. Although there is no significant difference in the immobility time, it was shown in the mean data of the two tests that the combination of mirtazapine and caffeine treated groups had the greatest immobility time as compared to the three control groups. Also, the mean data showed that the group administered with higher dose of mirtazapine had the greatest immobility time. The results are

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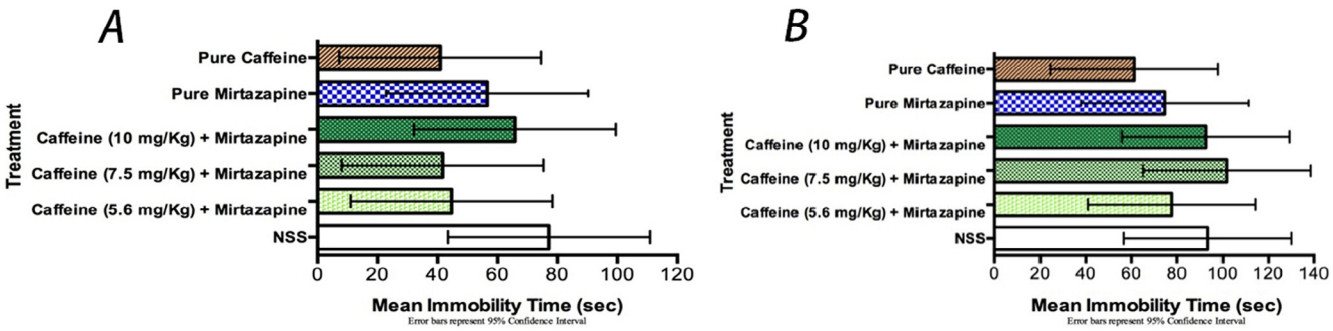


**Fig. 1 – Mean immobility time: Tail Suspension Test (A), Forced Swim Test (B).**

most likely caused by different confounders that altered the suspected result and difference.

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