

Protective Effect of Centella Asiatica Against Unpredictable Mild Chronic Stress Induced Behavioral Changes in Rats

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ABSTRACT

Stress is an unpleasant emotional experience which when becomes chronic results in major behavioural changes such as anxiety and depression. Prevention against these unfavourable conditions is vital for survival. Centella asiatica (CA) a green leafy herb native to Asia is being used traditionally as a brain tonic and rejuvenizer. Thus, an attempt has been made to explore the probable ameliorative effects of CA against behavioural alterations induced by unpredictable chronic mild stress in rat's model. The rats were subjected to 60 days of unpredictable chronic mild stress concurrently with treatment by CA or fluoxetine. Six groups in this study were: Control – no stress exposure, Model – Unpredictable chronic mild stress, Model + CA (200, 400 or 800mg/kg/day) and Model with fluoxetine 1mg/kg/day from day 30. Stressors included 4hrs exposure to restrainer, 15 min of cold water swim, 45° tilted cage overnight, food and water deprivation, overnight wet bedding, change mates and crowded housing. At least three different stressors were given on alternate days to avoid adaptation. At the end of experimental period, behavioural tests including Elevated Plus Maze (EPM), Open Field Test (OFT) and Forced Swim Test (FST) were used to evaluate anxiety and depression like behaviours. CA succeeded in ameliorating the behavioural alterations associated with unpredictable chronic mild stress. It significantly increased number of entries and time spent in open arms in EPM, augmented locomotor activity in OFT and increased activity in FST. All responses are indicative of decrease in depression and anxiety, furthermore no significant difference was observed between the mid and high doses of CA and fluoxetine group. It could be concluded that CA demonstrated a beneficial protective effects against experimentally induced stress in rats which is comparable to fluoxetine.