EFFECT OF CATHA EDULIS (KHAT) ON PENTYLENETETRAZOLE INDUCED SEIZURE THRESHOLD AND ELECTROENCEPHALOGRAM PATTERN OF CATHA EDULIS INDUCED SEIZURES IN RATS.

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ABSTRACT.

Khat is a herb that has been shown to contain a Central Nervous System (CNS) stimulant "cathinone" and whose mechanism of action is similar to amphetamines. Seizure- related emergencies caused by abuse of stimulants have been increasing. Cocaine and amphetamines have been shown to induce seizures in rats and mice. However there are no studies to show whether khat causes seizures. The active ingredient in fresh khat is cathinone, which is structurally similar to amphetamines. To investigate the possibility that khat causes seizures, seizure patterns associated with high doses of khat were characterized, followed by study of proconvulsant potential of low doses of khat.

The hypothesis of this study was that, khat can lower seizure threshold and induce epileptic seizure or convulsions. Khat related seizures were studied by giving khat orally at different doses to establish a dose response curve. Behavioral features of seizures were recorded on videotapes. Electroencephalographic features were recorded by use of five electrodes fixed on the scalp. Proconvulsant properties were evaluated by the timed intravenous Pentylenetetrazole (PTZ) seizure threshold test.

The dose response relationship was analyzed by probit analysis. ANOVA was used to analyse differences between groups. Bonferroni's procedure was used to correct for multiple comparisons. Results were considered significant if $P < 0.05$.

At low to moderate doses (1.5 g/kg to 13.5 g/kg), khat increased locomotor activity in rats. High doses (13.5 g/kg) induced seizures while low doses (3.0 g/kg) decreased seizure threshold. All rats developed type 2 seizures (Racine, 1972) but only 40% developed type 3 or 4 seizures.

Results suggest that khat at low doses lowers seizure threshold and that at high doses it induces seizures in rats.

KEY WORDS: Seizure, stimulants, khat, amphetamines, Pentylenetetrazole, epilepsy.