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Comparative pharmacological study of the four herbs, namely, Boerhaavia repens and rependa, Tribulus terrestris and Pedalium murex on different species of animals, was done.

1. The herbs Boerhaavia, Tribulus and Pedalium belong to the natural orders, Zygophylacae, Nyctaginaceae and Pedaliaceae respectively. They grow wildly and commonly eaten by cattle.

2. Several extracts of herbs were prepared using the following solvents - distilled water, normal saline (0.9%), alcohol, chloroform and solvent ether. In addition glycoside-like compound from the aqueous extracts and the active principle from the alcoholic extracts of Boerhaavia were prepared and used for the experiments. The water soluble portion of the ash of all the herbs also was used for the experiments.

3. The aqueous extracts of all the herbs show stimulant action on the heart of frog. This stimulant effect was not altered by previous atropinisation or pilocarpinisation of the heart. The other extracts like alcohol, chloroform and ether extracts of Boerhaavia also showed stimulant effect on the heart whereas those extracts of Tribulus and Pedalium did not show that effect. The glycoside-like compound of all herbs showed also the stimulent effect.
The rate of the heart was not affected except in case of the active principle which increased the amplitude of contraction and also decreased the rate of the heart.

The aqueous extracts of all the herbs and alcoholic extracts of Boerhaavia showed calcium-like effect on the depressed heart perfused with frog Ringer solution.

The electrocardiogram of dogs was studied in six animals. There was no marked change in any lead. In the case of active principle of Boerhaavia when injected to dogs in the dose of 1 mg./Kgm. slowing the heart rate was observed as evidenced by the increase in the width of P wave and QRS complex.

4. The extracts of Boerhaavia showed mild vasoconstriction on blood vessels of frog whereas those of Tribulus and Pedalium showed no marked effect on blood vessels.

5. The extracts of both varieties of Boerhaavia showed hypertensive effect whereas those of Tribulus and Pedalium showed hypotensive effect on blood pressure in anaesthetised dogs. These responses were not altered by previous atropinisation or ganglion blockade or by vagotomy.

6. No significant effect was observed by these extracts on respiration of dogs both in rate and depth.
7. A comparative study of the diuretic activity of the various extracts of Boerhaavia, Tribulus and Pedalium was done in albino rats and female dogs taking urea, acetazolamide, aminophylline, aprinox and potassium salts as reference drugs.

In these experiments both varieties of Boerhaavia were found to possess diuretic effect which was comparable to that of urea in rats and dogs. The diuretic activity of the other extracts got from Tribulus and Pedalium was less than that of urea and equal to or less than that of potassium salts.

Aminophylline and aprinox were found to be good diuretics acting promptly. They increased the excretion of water and electrolytes in the urine. The alcoholic extracts and the active principle of Boerhaavia also increased the excretion of electrolytes comparable to that of reference drugs. As regards the volume of water excreted, it was less than that of aminophylline but equivalent to that of urea.

The diuretic activity of both varieties of Boerhaavia could be attributed partly at least to the active principle present and not entirely due to the high potassium content of the herbs.

8. The aqueous extracts of Boerhaavia showed transient inhibitory effect on the smooth muscles of isolated and
intact intestines, whereas the alcoholic extracts and the active principle of Boerhaavia showed stimulant effect on the isolated intestines and no effect on the intact intestines of dogs in the dose administered. The other extracts from Tribulus and Pedalium showed no marked effect on the intestines.

Similar results were observed as that of intestines by the use of various extracts of herbs on the smooth muscles of the uterus obtained from freshly killed rats and guinea pigs.

9. Acute, subacute and chronic toxicity studies were conducted on albino rats using various extracts of the herbs. They showed no significant toxic changes in the kidney as revealed by histological study of the kidney sections.

10. Seat of action of the various extracts of the herbs especially those of Boerhaavia appear to be a combined one, acting directly on the heart and blood vessels as well as on the renal system.