

PHARMACOLOGICAL STUDY OF VARIOUS EXTRACTS OF STREBULUS ASPER

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ABSTRACT: *The effects of the crude, methanol, hexane TLC and acetone extractable portion of strebulus as per on frog's heart and smooth muscle of rabbit were studied. The different extracts of S. asper showed a stimulant effect on frog's heart while the crude and methanol extracts showed not much alteration in the peristaltic activity of smooth muscle or rabbit. Methanol, hexane and acetone extractable portion showed depression in peristaltic activity.*

INTRODUCTION

Drugs are chemical substances which by interacting with biological systems, change their behaviour. In complex organisms the nervous system is so important that we will find that many drugs act on synaptic areas either in the central nervous system or in autonomic or somatic nerves, others act on peripheral structures directly affecting contraction of muscles or secretion, yet others affect the growth and development or metabolism of tissues of invading organisms. The stem bark of *S. asper* was found to be effective against filariasis¹ and the anti-parasitic activity of the methanolic extractable portion of *S. asper* was studied². The effect of different extracts of *S. asper* was studied on frog's heart and skeletal muscle of rabbit and I presented in this paper.

MATERIAL AND METHODS

Preparation of extracts: the crude extract of the stem bark of *strebulus* was prepared in water as kashayam. For the preparation of the methanolic extract, the stem bark of *strebulus* was extracted with methanol (Soxhlet extraction) evaporated to dryness in a rotary vacuum evaporator at reduced

pressure and low temperature. The dried mass was collected and kept in sealed bottles in the refrigerator.

The methanolic extractable portion was redissolved in a small quantity of methanol, added water and extracted exhaustively with hexane, then with acetone. Both fractions were evaporated under vacuum and kept in sealed bottles in a refrigerator until used. The effective hexane extractable portion obtained from the methanolic fraction was further fractionated on TLC using silica gel and the TLC fraction showing antiparasitic activity was collected and stored in sealed bottles in a refrigerator.

Pharmacological study on frog's heart: Frog heart was perfused in situ through the inferior vena cava with frog ringer solution by Bulbring's methods. After cannulation the heart was perfused with frog ringer solution and the effects of various doses of the crude, methanol, hexane, TLC and acetone extractable portion were studied.

Pharmacological study on rabbit muscle: pieces of rabbit ileum were suspended in the usual manner in an isolated oxygen bath

(Vol 3 15 ml) containing oxygenated tyrode solution at 37°C 5 mgm each of the crude methanol hexane, TLC and acetone extractable portion dissolved in tyrode was applied to the ileum and its effects were studied.

RESULTS AND DISCUSSION

The results are given in figs I and II

1. Crude extract

The doses given was 1,2,5,10,15 and 20 mgm. Extract dissolved in ringer solution. As the concentration of the drug increased there was an increase in the amplitude of contraction (+ve inotropic) effect and increased rate of contraction (+ve chronotropic effect).

2. Methanolic extract

The doses given was 1,3 and 5mgm. dissolved in ringer solution. Beyond 5 mgm. There showed a tendency of cardiac arrest. As the concentration of drug increased there was increase in the amplitude of contraction (+ve inotropic)

3. Hexane extract

The doses given was 1,3,5,10,15 and 20 mgm. dissolved in ringer solution. As the concentration of drug increased there was increase in the amplitude of contraction. but a slight increase in the rate of contraction was observed.

4. TLC extract

The doses given was 1,3,5,10 and 20 mgm dissolved in ringer solution. Upto a concentration of 5 mgm. There was an increase in the amplitude of contraction (+ve inotropic) effect and tone. From 10mgm onwards there showed a decrease in the amplitude of contraction (-ve inotropic) effect.

5. Acetone extract

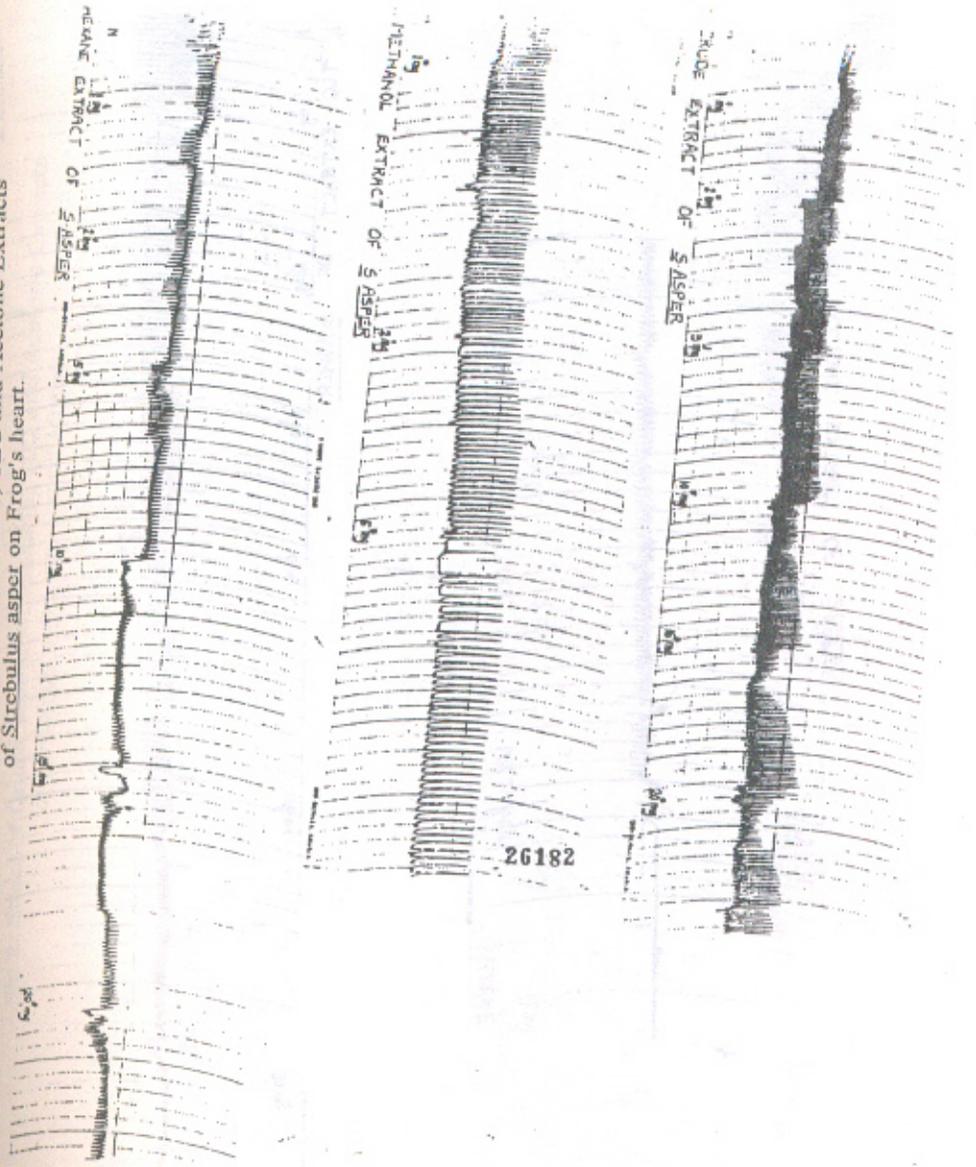
The doses given was 1,3 and 5 mgm dissolved in ringer solution 10 mgm showed a tendency of cardiac arrest. As the concentration of the drug increased there was a slight increase in the amplitude and rate of contraction. From the above study it was observed that the different extracts of *S. asper* showed a stimulant effect on frog's heart.

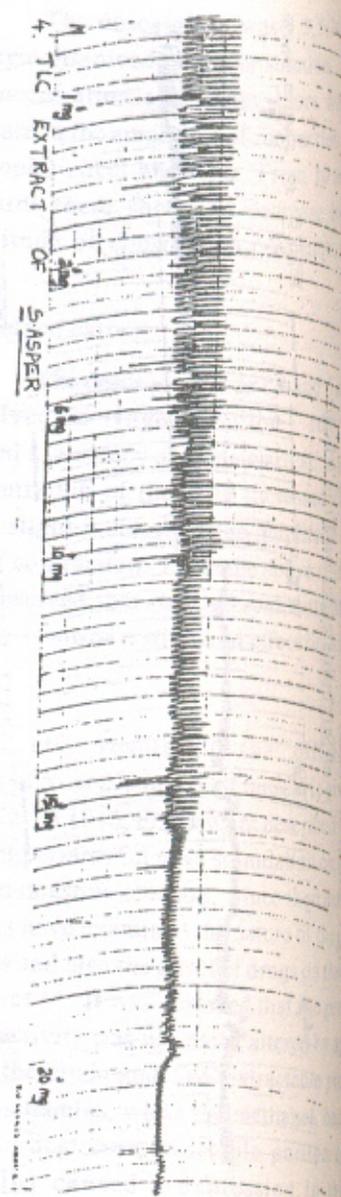
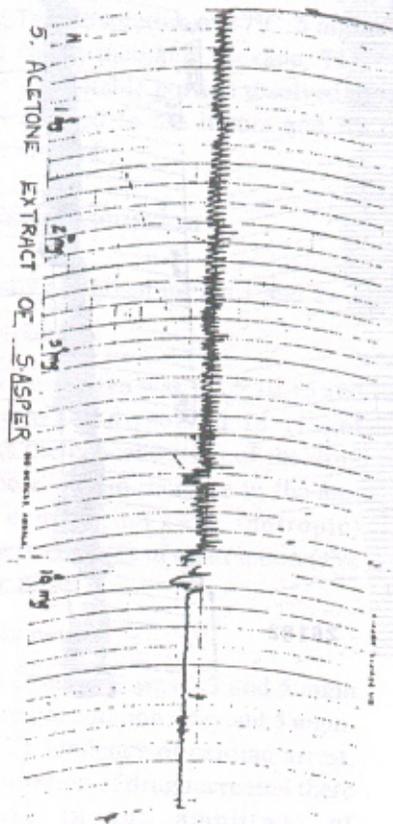
The result of the different extract of *S asper* on rabbit muscle is given in Fig 2 In 1940 Finkleman⁴ described the effect of periaarterial nerve stimulation on the isolated intestine of rabbit. Since then many workers have examined the nature of the responses 5-8 it was observed that the peristaltic activity was not much altered by applying the crude and TLC extractable portion of strebulus, while the methanol, hexane and acetone extractable portion of strebulus caused a depression in the peristaltic activity of the rabbit muscle.

ACKNOWLEDGEMENT

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FIG. 1. Effect of Crude, Methanol, Hexane, TLC and Acetone Extracts of *Sirebubus asper* on Frog's heart.





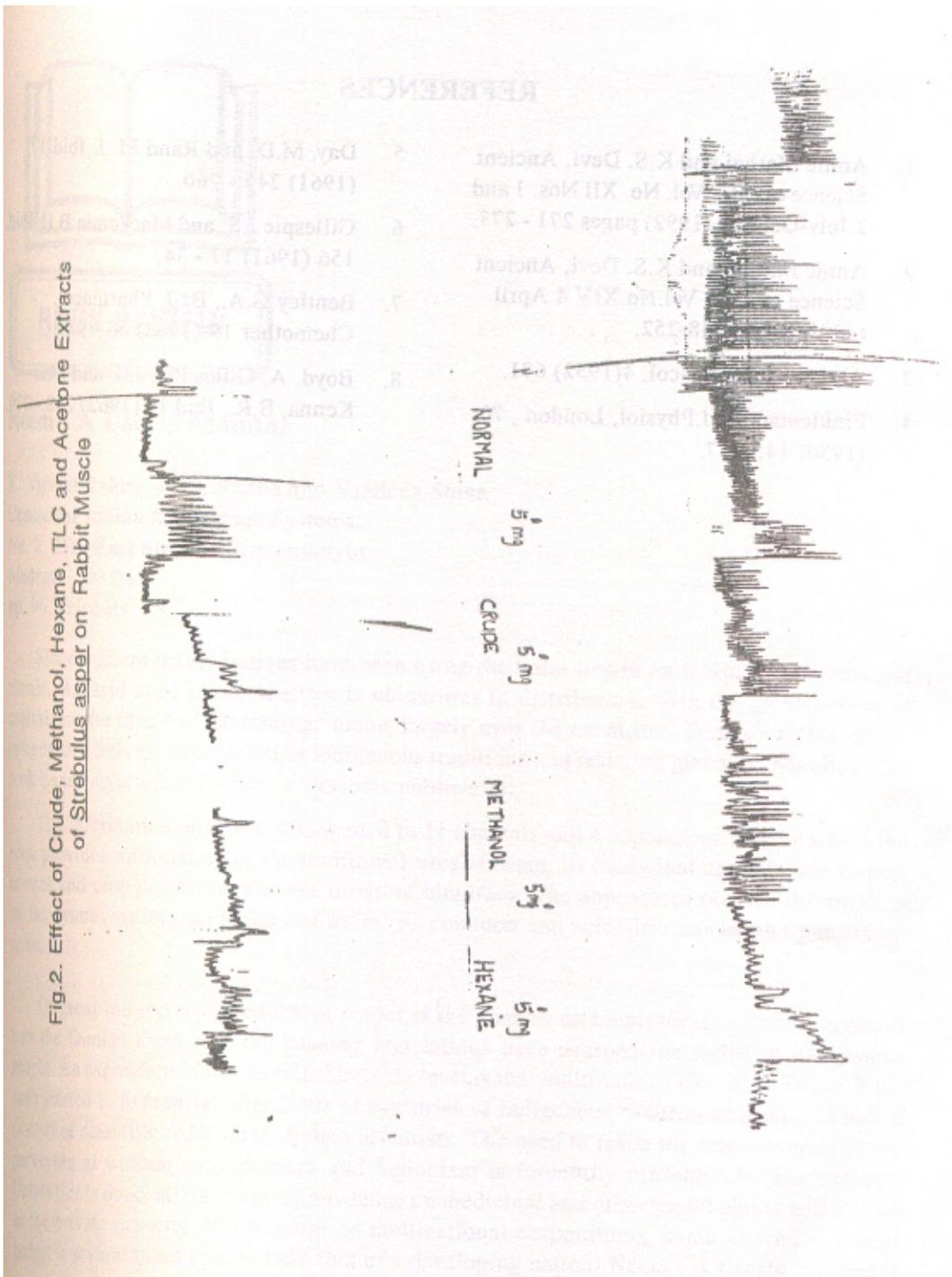


Fig.2. Effect of Crude, Methanol, Hexane, TLC and Acetone Extracts of *Strebulus asper* on Rabbit Muscle

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