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PHARMACOLOGICAL SCREENING OF INDIGENOUS MEDICINAL PLANTS (III)

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ABSTRACT

The effects of the alcoholic extracts of fifteen indigenous plants have been studied on the isolated guineapig ileum preparations. Eleven extracts produced a spasmogenic effect, whereas, four extracts depicted a spasmolytic effect against acetylcholine.

Introduction

In the course of investigations on the pharmacological effects of indigenous medicinal plants collected from the Northern Regions of Pakistan, it was observed that the alcoholic extracts of some of the plants produced spasmogenic and antispasntogenic effects on the isolated preparations of intestinal pieces obtained from different experimental animals. Subsequently the extracts of several indigenous plants were taken up for studying their effects on the isolated guinea-pig ileum preparations to prepare a comprehensive report on these activities, and the effects of the alcoholic extracts of 30 plants were reported (Hymn et al., 1982 and 1983). This paper deals with a report on the effects of fifteen other indigenous plants, on the isolated guinea-pig ileum preparation.

Materials and Methods

Preparation: of Plant Extract:

A weighed amount (100 g) of the dried powdered plant material was extracted with alcohol in a percolator. The extract obtained after the removal of solvent was repeatedly triturated with pet-ether ($40\text{-}60^0$) till all the colouring material was removed. The extract was then charcoaled, filtered, dried under vacuum and weighed. The amount of the ex-tract thus obtained has been expressed as the percentage (000 g) of the concerned plant material (Table-1).

Isolated Guinea-pig ileum Preparation:

The preparation was set up according to the *procedure* adapted by Khan (1959) in an organ bath of 10 ml capacity containing oxygenated Tyrode solution. The contractions were recorded on a revolving smutted drum with the help of frontal writing point lever.

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The sensitivity of each preparation was tested with graded doses of acetylcholine, before starting experiments with the extract in hand.

Experimental Procedure:

A 10 mg/ml stock solution/suspension of the extract was prepared freshly in Tyrode solution and two different concentrations (i.e. 400 and 800 µg/ml) were tested on the isolated guinea-pig ileum. The extract either contracted (spasmogenic effect) the isolated tissue or failed to produce any contractile effect. The extracts which did not produce a contractile effect were tested for their antispasmogenic effects against acetylcholine induced contractions.

Table 1: Description of plants

S. No.	Name of Plant	Family	Part	Wt. of Extract
1.	Matricaria praecox DC	Compositae	W	8.0
2.	Anagallis arvensia L	Primulaceae	W	9.9
3.	Aesculus indica Wall ex Camb.	Hippocastance eae.	L	2.8
4.	Centraures iberica Trev ex spreng.	Compositae	A	4.5
5.	Ficus bengalensis L	Moraceac	F	23.3
6.	Heliotropium remosissimum DC	Boraginaceae	A	20.0
7.	Ipomoea carnes Jacp	Convolvulaceae	L	15.8
8.	Lathyrua aphaca L	Papilionoideae	W	9.1
9.	Linum usitatissimum L	Linaceae	S	19.0
10.	Nasturtium officinale R. Br.	Cruciferae	W	5.9
11.	Ranuculus sceleratus L	Ranunculaceae	L	13.4
12.	Rhazya stricta Dene.	Apocynaceae	L	9.0
13.	Strobilanthes attenuatus Nees.	Acanthaceae	W	13.9
14.	Skimmia laureols DC	Rutaceae	A	7.1
15.	Vicia sativa L.	Papilionoideae	W	10.0

*G/100 g of dried material
A = Aerial part; S = Seeds; L = Leaves; W = Whole plant; F = Petit.

Solution used:

Tytode solution containing the following constituents (in G/L of distilled water) was used.

NaCl	: 8.0	NaH_2PO_4	: 0.05
KCl	: 0.2	$NaHCO_3$	: 1.0
CaClz	: 0.2	Glucose	: 1.0
$MgC1_2$	: 0.1		

Results

The extracts of the following plants produced spasmogenic effect on the isolated guinea-pig ileum preparation: *Matricana praecox, Anagallis arvensia, Ficus bengalensis, Ipomoea cameo, Lethyrus aphaca, Nasturtium officinale, Ranunculus sceleratus, Strobilanthes attenuatus, Skimmia laureola, Vicia sativa* and *linum usitatissimum.*

The extracts of the following plants antagonized acetylcholine on the isolated guinea-pig ileum preparation. Aesculus indica, Centaurea iberica, Heliotropium ramosissimum and Rhazya stricta.

Discussion

The findings reported in this paper indicate that out of the alcoholic extracts of different parts of plants, eleven produced spasmogenic effect, whereas, four depicted a spasmolytic effect by antagonising the effects of acetylcholine. It is proposed of take up some of the potent extracts for studying the mechanism of action of their spasmogenic or antispasmogenic effect.

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