

A PHARMACOLOGICAL STUDY OF SOME ABORTIFACIENT PLANTS

(Preliminary Report)

By

MITHLESH SHARMA AND S.S. MISHRA*

Department of Pharmacology, G.S.V.M. Medical College, Kanpur

Abortifacients of vegetable origin are commonly used in rural areas for termination of pregnancy and inducing uterine contractions during postpartum period. Preliminary studies on five plants which are the ingredients of a commonly used herbal decoction, Dashmool, have already been reported from this laboratory (3 and 1). The present work embodies detailed observations on the pharmacological activities of these plants.

MATERIALS AND METHODS

The following plants were selected for chemical analysis and pharmacological studies :

TABLE I

<i>Name of the plant.</i>	<i>Parts used.</i>
1. <i>Abroma augusta</i> Linn. (N.O. Sterculaceae)	Stem, root & root bark
2. <i>Bombax malabaricum</i> (N.O. Malvaciae)	Seeds
3. <i>Grangea maderaspatana</i> (N.O. Compositae)	Fruits
4. <i>Paeonia emodi</i> Wall (N.O. Renunculaceae)	Tubers
5. <i>Uraria lagopoides</i> D.C. (N.O. Papillionaceae)	Stem & leaves.

All plants were air dried in the shade, finally powdered and Soxhlet extraction in 95% alcohol was done. The alcoholic extract was concentrated on water bath till semisolid, and was transferred to a vacuum dessicator to make a dry powder. 50% solution was used for experimental purposes.

CHEMICAL STUDIES

The extracts were tested for the presence of alkaloids, glycosides, saponins and sterols.

TABLE II

<i>Name of the plant</i>	
1. <i>Abroma augusta</i> Linn.	Glycoside & sterol
2. <i>Bombax malabaricum</i> DC	Alkaloid
3. <i>Uraria lagopoides</i> DC	Alkaloid, glycoside & a sterol

* Present Address: Department of Pharmacology, M.L.N. Medical College, Allahabad.

PHARMACOLOGICAL STUDIES

1. *Uterus-Gravid* and non-gravid uterine strips of various species of rats, guinea pigs and rabbits were used. Human strips obtained from cases of total or partial hysterectomy were used by method of Moir (2). Dog uterine horn (non-pregnant) *in situ* was set up in the usual way.

Except for *Uraria lagopoides*, no drug showed any response on dog uterus *in situ*. Significant uterotonic effect was shown by *Abroma augusta* Linn., *Bombax malabaricum* and *Uraria lagopoides* on various species. Effects were more marked in pregnant human strips as compared to non-pregnant strips but in rats, extracts were equally effective both in pregnant and non-pregnant uterine preparations. No uterotonic activity of extracts of *Paeonia Emodi* Wall could be demonstrated on any species.

TABLE III

Name of the drugs	Isolated uterine preparations—dose 250 mg.						Dogs uterus <i>in situ</i> 60 mg/kg.
	Rat uterus		Rabbit uterus	Guinea pig uterus	Human uterine strips		
	Preg.	Non preg.			Preg.	Non—preg	
1. <i>A. Augusta</i> Linn.	+++	+++	+	++	+++	++	—
2. <i>B. malabaricum</i> DC.	+++	+++	+	+++	+++	++	—
3. <i>G. Maderaspatana</i> Poir	++	++	—	++	+++	++	—
4. <i>P. Emodi</i> Wall.	—	—	—	—	—	—	—
5. <i>U. lagopoides</i> DC	++++	++++	+++	+++	++++	+++	+++

EFFECT ON SMOOTH MUSCLES

Experiments on isolated strips of rabbit's jejunum and dog's ileum *in situ* were carried out. *Abroma augusta* and *Bombax malabaricum* caused inhibition of both tone and amplitude. These drugs abolished the spasm induced by acetylcholine but had no effect on histamine and barium chloride induced spasm. *Uraria lagopoides* produced relaxation of dog's intestine and abolished the spasm induced by Barium chloride. No spasmolytic effect was seen on rabbit's jejunum. *Grangea maderaspatana* had no effect on either of these preparations.

Effects of the extracts on the cardiac muscle of different species and blood pressure of dog are summarised in Table IV.

EFFECT ON RESPIRATION

Except *Grangea maderaspatana*, other three drugs stimulated the respiration of dogs. This action with *Abroma augusta* and *Bombax malabaricum* may be reflex in nature due to fall in blood pressure.

TABLE IV

Drugs	Frog heart	Rabbit heart	Frog blood vessels	Rat blood vessels	Dog blood pressure
Abroma augusta Linn.	Depression of rate & amplitude. Stoppage in diastole. Not blocked by atropine.	Reduction in tone & amplitude.	Vasoconstriction not blocked by Prisco-line.	Vasoconstriction not blocked by Prisco-line.	Hypotensive. Fall in B.P. blocked by atropine.
Bombax malabaricum	Reduction in rate. No change in amplitude. Not blocked by atropine.	No effect even in high doses	-do-	-do-	-do-
Grangea maderaspatana Poir	No significant effect	No effect	-do-	No effect	No effect
Paeonia Emodi Wall	No systemic effects were seen since the drug was devoid of any uterotonic effect.				
Uria lagopoides	Reduction in rate, tone & amplitude. Diastolic arrest in high doses. Not blocked by atropine.	Decrease in amplitude. High doses caused diastolic arrest	-do- ;	Vasoconstriction not blocked by Prisco-line.	No effect even in high doses.

SUMMARY

Out of the five indigenous abortifacient plants viz, *Abroma augusta*, *Bombax malabaricum*, *Grangea maderaspatana*, *Paeonia Emodi Wall* and *Uria lagopoides*, *Uria lagopoides* is the most potent uterine stimulant while *Paeonia emodi Wall* did not have any action on uterus.

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