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ANTI-OVULAYOR EFFECT OF DIFFERENT CRUDE DRUG COMBINATIONS IN FEMALE ALBINO RATS

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ABSTRACT: *Three different crude drug combinations viz; the extracts of bark, leaf and stem of A. indica; fruits of P. longum and berries of E. ribes prepared using different solvents were tested for their anti-ovulatory effect in female albino rats. The first and third combinations have shown promising results in terms of prolongation of disastrous phase of estrous cycle.*

Introduction

The alarming rate at which population explosion is taking place has necessitated man to explore for the contraceptive drugs to check birth rate. In Ayurvedic medicine texts, references are available of various plants that possess antifertility properties without much side effects. The antifertility activity of berries of E. ribes in albino rats has been reported earlier (1-3). Kholkute et al. (4,5) screened the dried fruits of P. longum and is various extracts for antifertility activity in female albino rats. The antifertility activity of A. indica has been mentioned previously (6-7). Eventhough, the antifertility activity has been reported for the individual drugs, the research pertaining to the investigations of the antifertility activity of different combinations of extracts prepared systematically from crude drugs is lacking.

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The present paper deals with the anti-fertility effect of different extracts of crude drug in compination which were evaluated in order to probe into their potentiating antifertility effect due to the phytochemicals extractable with non-polar and polar solvents.

Experimental

Preparation of crude drug combinations: The pertroleum ether (60-80^{o}) extracts of the powdered leaf, stem and bark of *Azadirachta indica* (Meliaceae) were prepared by successive solvent extraction using soxhlet assembly. The benzene extract of leaf of *A. indica*, fruits of *Piper longum* (Piperaceae) and berries of Embelia ribes (Euphorbiaceae), as well as, the alcoholic extracts of leaf, stem and bark of *A. indica* were prepared by maceration technique. The solvents were distilled off under reduced pressure and the extracts were dried in vaccum. All the extracts were stored at

refrigerated temperature prior to use. Different combinations of the extracts were prepared as follows

Combination I: Pet ether (60^oC-80^oC) extracts of leaf, bark and stem of A. Indica inequal proportion(1:1:1).

Combination II: Alcoholic extracts of leaf, bark and stem of A. indica in equal proportions (1:1:1).

Combination III: Benzene extract of leaf of A indica fruits of P. longum and berries of E. *ribes* in equal proportions (1:1:1).

Determination of pre-ovulatory activity (8): In the present investigation, healthy female albino rats (Wistar strain) of proves fertility obtained from National Institute of Nutrition, Hyderabad and weighing between 125-175 gms were selected. The animals were acclimatized to the laboratory conditions for a week. The vaginal smears were observed early in the morning for seven days to identify different phases for estrous cycle. The female rats in which the same phase of estrous cycle occurred were separated and divided into 5 groups of five animals each.

The drug combinations I, II and III were administered orally in the form of suspension with 1% of carboxy methyl cellulose (CMC) for seven days (150 mg/kg) to the first three groups of rats. Noracycline was administered in a dose of 60 mg/kg to the fourth group of rats which served as standard. 1% CMC in the dose of 150 mg/kg administered to the fifth group of rats served as control. On the seventh day evening, health male albnorats were allowed to mateon the ratio observed every day in morning for a period of 15 days from the first day of drug fed.

Results and discussion

The percentage yield of various extracts of the crude drugs have been shown in Table-1 the maximum yield was by alcoholic maceration of the leaves of A indica (14% W/W), whereas benzene extraction of P. *longum* yielded only 0.82% W/W of the extract.

It was observed that the combinations I & III prolonged the diestrous phase of estrous cycle by a period of 11 and 7 days respectively, whereas the group of albino rats treated with combination II did not show any prolongation in diestrous phase (Table- II). It was only after 5 days of stoppage of drug feeding, two animals in group treated with combination I allowed copulation. However, remaining animals in the same group allowed copulation after fifteen days. The groups of albino rats treated with combination II, III and V allowed the copulation during the period ranging from second to sixth day after the drug was withdrawn. However, all the animals of fourth group treated with Noracycline (60mg/Kg) did not allow copulation for a period of 10 days.

The investigations revealed that the drug combinations I and III could effectively prolong diestrous phase of estrous cycle, whereas, combination II had no such effect.

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Table-1

Percentage yield of different extracts of crude drugs obtained by successive solvent extraction and maceration technique

S.L No	Crude drug and part used	Method of extraction	Solvent used	% yield W/W
1.	A. indica, leaf	Successive	Pet. Ether (60-80^{o}C)	2.50
2.	A. indica, bark	"	"	1.90
3.	A. indica, stem	"	"	2.10
4.	A. indica, leaf	Maceration	Alcohol	14.00
5.	A. indica, bark	"	"	10.00
6.	A. indica, stem	"	"	8.92
7.	A. indica, leaf	"	Benzene	1.83
8.	P. longum, fruits	"	"	0.82
9.	E. ribes, berries	"	"	1.80

TABLE – II

Anti-ovulatory effect of combinations of different Extracts derived from crude drugs

Group No.	No of animals in each group	Combination	Route dose mg/Kg body weight	Prolongation of diestrous phase of estrous cycle (in days)	Copulation allowed after drug was withdrawn (in days)
1	5	I	Oral/150	8-11	5-15
2	5	II	Oral/150	Nill	2-5
3	5	III	Oral/150	5-7	2-6
4	5	Noracycline	Oral/60	8-12	4-10
5	5	1% CMC	Oral/150	Nill	2-3

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