
Antiimplantation Activity of Alcoholic Extract of *Rivea hypocrateriformis*

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Different doses of 95% alcoholic extract of whole plant of *Rivea hypocrateriformis* (Convolvulaceae) was tested for antiimplantation activity in female albino rats. The alcoholic extract at a dose of 200 mg/kg body weight has showed 66.66% antiimplantation activity. Whereas, at 400 mg/kg body weight, significantly prevented pregnancy by 100%. The antiimplantation activity was reversible on withdrawal of the treatment of the extract.

One approach being pursued to identify new antifertility agents is the search for their presence in natural sources. Many plant preparations are reported to have fertility regulating properties in the ancient Indian literature¹⁻⁴. Many have been tested for such effects, but with no success. Hence, the search needs to be continued. *R. hypocrateriformis* (convolvulaceae) is a large climbing shrub, found almost throughout India. Leaves orbicular, cordate, mucronate; flowers white, fragrant, clove-scented, opening in the evening, closing during day; fruit a globose, reddish brown capsule, usually 1-4 seeded⁵. In and around Basavakalyan (Bidar District, Karnataka), Ayurvedic physicians use *R. hypocrateriformis* to prevent fertility. Eventhough the plant is known for a large number of other biological activities, no systematic investigation of its biological activities has been done so far. Literature survey does not reveal any chemical or biological investigations on this plant. Hence, in continuation of our work on antifertility activity of medicinal plants⁶⁻⁹, in the present investigation we have subjected *R. hypocrateriformis* to antiimplantation testing in female albino rats.

Fresh aerial plant parts of *R. hypocrateriformis* were collected during July and August, 1997 in and around Basavakalyan (Bidar District, Karnataka) and authenticated in the Herbarium, Department of Botany, Gulbarga University, Gulbarga. The shade-dried plant (350 g) was powdered and extracted with 95% alcohol (3 l) in a Soxhlet extractor exhaustively for 18-20 h. Alcoholic extract was then concentrated to dryness in a flash-evapo-

rator under reduced pressure and controlled temperature (50-60°). On evaporation, the alcoholic extract yielded a black gummy semisolid weighing 10 g. The semisolid was stored in a refrigerator. Different doses of the extract 200 and 400 mg/kg were prepared in (1%) Tween-80 suspended in distilled water and administered orally to the animals with the help of an intragastric catheter.

Colony-bred female albino rats (Wistar Strain) weighing (160-220 g) were used to assess antiimplantation activity. All the animals were maintained under controlled standard animal house conditions with access to food and water *ad libitum*. Vaginal smears from each rat were monitored daily. Only the rats with normal estrous cycles were selected for the experiment. Antiimplantation activity was determined as described by Khanna and Choudhury¹⁰. The rats found in the estrous phase of the cycle were caged with males of proven fertility, in the ratio of 2:1. The females were examined the following morning for evidence of copulation. Rats exhibiting thick clumps of spermatozoa in the vaginal smears were separated and that day was designated as day 1 of pregnancy. The separated pregnant rats were divided into 3 groups containing 6 animals in each group. The first group received the vehicle (1% Tween-80) only. Alcoholic extract was administered orally at two different doses of 200 and 400 mg/kg to second and third group, respectively from day 1 to day 7 of pregnancy. On day, 10, laparotomy was performed under light ether anaesthesia and semisterile conditions. The uteri were examined to determine the number and size of implantation sites. Rats were allowed to recover and deliver after full term. Each

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Table 1 - Antifertility effect of 95% alcoholic extracts of *R. hypocrateriformis*

Sl. No.	Treatment	Dose mg/kg	No. of rats having no implantation sites on day 10	Mean No. of Implants±S.E.	% of rats having no implantation sites on day 10
1.	Control	-	Nil	11.0±0.46	Nil
2.	Alcoholic (95%) extract	200	4	03.0±1.92*	66.6
		400	6	0.00±0.00*	100

Each group consisted of 6 rats. Asterisk denotes significant difference at $P \leq 0.05$ when compared to control.

fetus was weighed and examined for gross defects. The litters were allowed to grow to check post-natal growth and monitor any congenital abnormalities. The results were judged significant if $P \leq 0.05$.

In the present study, alcoholic extract of *R. hypocrateriformis* was tested for its antiimplantation activity. Table-1 reveals that, the alcoholic extract of *R. hypocrateriformis* at two different doses, 200 and 400 mg/kg significantly inhibited pregnancy in 4/6 rats with a mean number of implants of 3.0 ± 1.92 ($P \leq 0.05$) and 6/6 rats with mean number of implants 0.00 ± 0.00 ($P \leq 0.05$), respectively.

All the experimental and control animals that continued their pregnancy delivered normally after full term. There was no defect in any of the litters and there was no appreciable changes in their weights. After discontinuation of treatment, all the animals were mated, this resulted in pregnancy and delivery of normal litters indicating that the action of alcoholic extract of *R. hypocrateriformis* was reversible.

Preliminary phytochemical studies indicated the presence of steriods in the alcoholic extract. Since various steriods¹¹ are known to possess antifertility activity. The antiimplantation activity of alcoholic extract of

R. hypocrateriformis might be due to the presence of such compounds.

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