ANTIFERTILITY ACTIVITY OF *CARICA PAPAYA*

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EXTENDED ABSTRACT

There are widespread claims that certain plants have antifertility properties and the importance of plants as a source of antifertility drugs is well recognised (Farnsworth *et al* 1975). Such an agent would be useful particularly in the developing countries, since it would be cheaper. Also, a drug given in the form of a crude extract or semi-purified isolate would be more acceptable to rural people, in addition to being freely available.

Carica papaya, the common papaw is a plant belonging to the family Caricacea. There are numerous reports from different parts of the world on the ethnomedical use of this plant as an anthelmintic, antibiotic, antipyretic and an insecticide. It has even been used as a substitute for tobacco in cigarettes. However, the most frequently cited uses of *Carica papaya* are on account of its activity on reproduction (Dhar *et al* 1978, Gopalakrishnan and Rajasekharasetty 1978). Oral administration of various parts of the plant, for example latex, fruit and seed, given as a water decoction is said to terminate pregnancy. In fact pregnant women in several countries such as Malaysia, India, Brazil and even in Sri Lanka are strictly prohibited from eating the fruit. There are also claims that the latex applied to the os uterus causes abortion.

Despite these numerous reports the biological tests done on this plant are inadequate and inconclusive. Therefore the present work was undertaken to determine whether this plant has any activity which could cause termination of pregnancy. This investigation reports the potential antifertility activity of the seeds of *Carica papaya.*

A bioassay routinely used in our laboratories to test plant extracts for antifertility activity was used in this study (Goonasekera *et al 1995).* An aqueous extract of sun-dried seed was prepared and yielded a dry weight equivalent of 40.6 g/kg when freeze dried. The dosage form was prepared by suspending the extract in distilled water, and the concentration was adjusted so that the maximum volume that could be administered to a rat did not exceed 0.2 ml. The rats used were of the Sprague-Dawley strain. The females were virgin rats 8-10 weeks of age and weighing 185-250 g. Their cyclicity was established by daily examination of vaginal smears. The males were less than 1 year of age, weighed 250-390 g and were proved fertile before use. The females were observed for two oestrus cycles and each female in proestrus was permitted access to a fertile male. Animals showing evidence of mating based on vaginal smears were divided into treated and control groups, each group consisting of ten rats. The extract was administered subcutaneously at a dose of 0.26 g/kg/day, for a period of ten days beginning on day 1 of pregnancy. The controls received distilled water. The vaginal smears and body weights were monitored daily.

The females autopsied on day 16 revealed that although all rats were pregnant only three of the extract treated rats had normal foetuses. The mean number of foetuses in these three animals was 5.0 ± 2.6 compared to 9.5 ± 3.2 in the ten control rats. This difference was statistically significant. The number of implantation sites in the treated group was 8.25 ± 3.7 and that in the control group 9.7 ± 2.8. This difference was not statistically significant. The body weights of the rats in the control group showed a steady increase, but in the treated group although a gain in body weight was seen initially, this was not so after day 8 of pregnancy. The cessation of weight gain and the reduction in the number of normal foetuses suggest that the seeds of *Carica papaya* may have abortifacient activity in the rat. Further work aimed at determining the mode of action and the active ingredient/s is continuing.

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