Randomized placebo-controlled, single blind trial of holy basil leaves in patients with noninsulin-dependent diabetes mellitus.  

Aripiprazole for Olanzapine-induced symptomatic hyper prolactinemia.  

Reversible anti-fertility effect of benzene extract of *Ocimum sanctum* leaves on sperm parameters and fructose content in rats.  

Effect of benzene extract of *Ocimum sanctum* leaves on cauda epididymis of albino rats.  

Effects of *Ocimum sanctum* (Tulsi) on the reproductive system: An updated review.  

Amenomeri, I., Chen, C.L. and Meites, J. (1970)  
Serum prolactin levels in rats during different reproductive states.  

Improved shelf life of protein-rich tofu using *Ocimum sanctum* (Tulsi) extracts to benefit Indian rural population.  
*J. Food Sci.*, 72 : M300–M305.

Larvicidal activity of *Ocimum sanctum* Linn. (Labiateae) against *Aedes aegypti* (L) and *Culex quinquefasciatus* (say).  


Effect of certain bioactive plant extracts on clinical isolates of β-lactamase producing methicillin resistant *Staphylococcus aureus*.  
Effect of Ocimum sanctum on noise induced changes in neutrophil functions.

A comparative study of different crude extracts of Ocimum sanctum on noise stress.

Aruna, K. and Sivaramakrishnan, V.M. (1992)
Anti-carcinogenic effects of some Indian plant products.

In vitro studies on the effect of Ocimum sanctum L. leaf extract in modifying the genotoxicity induced by chromium and mercury in Allium root meristems.
*J. Environ. Biol.*, 27(1) : 93 –95.

Protective effect of oleanoic acid and ursolic acid against lipid peroxidation.

Balanehru, S. and Nagarajan, B. (1992)
Intervention of adriamycin induced free radical damage.

Modulatory influence of alcoholic extract of Ocimum leaves on carcinogen-induced metabolizing enzyme activities and reduced glutathione levels in mouse.

Mitochondrial Malate dehydrogenase and malic enzyme of a filarial worm Setaria digitata: same properties and effects of drugs and herbal extracts.

The antifertility effect of Ocimum sanctum and Hibiscus rosa sinensis.

Baum, M.J. (1999)
Anti-Stress activity of *Ocimum sanctum* Linn.


Laboratory evaluation of insecticidal properties of *O. basilicum* Linn. and *O. sanctum* Linn. plants essential oil and their major constituents against vector mosquito species.

Bhattacharya, S. (1978)

Adaptogenic activity of Siotone, a polyherbal formulation of Ayurvedic rasayanas.

Further investigations on antioxidant activity of *Ocimum sanctum* using different paradigms of oxidative stress in rats.

Essential oils of *Ocimum gratissimum* L. and *Ocimum tenuiflorum* grown in Andhra Pradesh.
*Indian Perfumer*, 40 : 73–75.

Biswas, K., and Ghosh, E. (1952)

Biswas, K. and Ghosh, E. (1973)

Bridges and Dunckel, P.T. (1987)
Hormonal regulation of maternal behavior in rats: stimulation following treatment with ectopic pituitary grafts plus progesterone.
Bridges, R.S. and Ronsheim, P.M.


Chemical Abstract (1983) 98; 176348g.


Current Status of plant products reported to inhibit sperm.  

Gallo, R.V. (1981)  
Pulsatile LH release during the ovulatory LH surge on proestrous in the rat.  

Ganang, W. F. (2001)  

Enhancement of bone marrow radioprotection and reduction of WR-2721 toxicity by *Ocimum sanctum*.  

Ganasoundari, A., Zare, S.M. and Uma Devi P. (1997)  
Modification of bone marrow radio-sensitivity by medicinal plant extracts.  

Antifertility activity of the methanolic leaf extract of *Cissampelos pareira* in female albino mice.  
*J. Ethnopharmacol.*, 111(3): 688-691.

Antifertility potential of *Neem* flower extract on adult female Sprague-Dawley rats.  

Inhibition of lipid peroxidation by botanical extracts of *Ocimum sanctum*: in vivo and in vitro studies.  

Activity of *Ocimum sanctum* (the traditional Indian Medicinal plant) against the enteric bacteria.  

Studies on the effect of prolactin treatment on testicular steroidogenesis and gametogenesis in lithium-treated rats.  
*Acta Endocrinologica (Copenh)*, 125:313-318.
Direct effects of lithium chloride on testicular Δ5-3β and 17β-hydroxysteroid dehydrogenase activities in the rat – in vitro study.


Ghosh, M.N. (1971)

Effect of Tulasi (*Ocimum sanctum*) on diabetes mellitus.

Godhwani, S., Godhwani, J.L. and Vyas, D.S. (1987)
*Ocimum sanctum*: an experimental study evaluating its anti-inflammatory, analgesic and antipyretic activity in animals.

*Ocimum sanctum* – a preliminary study evaluating its immunoregulatory profile in albino rats.

Trace element studies on Tinospora cordifolia, (Menispermaceae), *Ocimum sanctum* (Lamiaceae), Moringa Oleifera (Moringaceae) and Phyllanthus niruri (Euphorbiaceae) using PIXE.

Antidiabetic, antihypcholesterolaemic and antioxidant effect of *Ocimum sanctum* (Linn) seed oil.

Validation of traditional claim of Tulsi, (*Ocimum sanctum* Linn.) as a medicinal plant.

Haimovici, F. and Anderson, D.J. (1993)
Cytokines and growth factor in implantation.

Chemical composition and antioxidant property of holy basil (Ocimum sanctum L.) leaves, stems, and inflorescence and their in vitro callus cultures.

Lens aldose reductase inhibiting potential of some indigenous plants.

Ocimum sanctum extracts attenuate hydrogen peroxide induced cytotoxic ultrastructural changes in human lens epithelial cells.

Hypoglycemic, hypolipidemic and antioxidant properties of Tulsi (Ocimum sanctum Linn) on Streptozotocin induced diabetes in rats.
Indian J Clin Biochem; 16(2):190-194.

Ocimum sanctum leaf extracts stimulate insulin secretion from perfused pancreas, isolated islets and clonal pancreatic beta-cells.

Ethnobotany of Uttara Kannada district in Karnataka, India – plants in treatment in Skin diseases.

Hart, B.L. (Ed.) (1976)

Hasan, S.B. and Deo, P.G. (1994)
Ocimum sanctum seeds for mosquito control.
Int. Pest Control., 86 : 20–21.

Preovulatory secretion of progesterone, luteinizing hormone and prolactin in 4-day and 5-day cycling rats.
Jaraback, J. (1969)

Chemotaxonomical analysis of the essential oil aroma compounds of four different *Ocimum* species from Southern India.

Evaluation of nootropic potential of *Ocimum sanctum* Linn in mice.

Joshi, S.G. (2000)

Antioxidative properties and stability of ethanolic extracts of Holy basil and Galangal.

Antistressor activity of *Ocimum sanctum* (Tulsi) against experimentally induced oxidative stress in rabbits.

Flowers of *Hibiscus rosa-sinensis*, a potential source of contraceptive agent : I. Effect of benzene extract on implantation of mouse.
*Contraception*, **29**: 385-397.

Effect of ethanol extract of whole plant of *Trichosanthes cucumerine* var. *cucumerina* L. on Gonadotropins, ovarian follicular kinetics and estrous cycle for screening of antifertility activity in albino rats.

Screening for antifeedant and larvicidal activity of plant extracts against *Helicoverpa armigera* (Hübner), *Sylepta derogata* (F.) and *Anopheles stephensi* (Liston).

Kantak, N.M. and Gogate, M.G. (1992)
Effect of short term administration of Tulsi (*Ocimum sanctum* Linn.) on reproductive behaviour of adult male rats.

Karthikeyan, K., Ravichandran, P. and Govindasamy S. (1999) 
Chemopreventive effect of *Ocimum sanctum* on DMBA – induced hamster buccal pouch carcinogenesis.
*Oral Oncol.*, **35**(1) : 112 – 119.

Antifertility effects of *Ocimum sanctum* Linn.

Antioxidant activity of hydroalcoholic leaf extract of *Ocimum sanctum* in animal models of peptic ulcer.

Kelm, M.A. and Nair, M.G. (1998) 
Mosquitocidal compounds and triglyceride,1,3-dilinolenoeol-2-palmitin from *Ocimum sanctum*.

Anti-oxidant and Cyclooxygenase inhibitory phenolic compound from *Ocimum sanctum* Linn.
*Phytotherapy*, **7**(1); 7 – 13.

Antiinocceptive action of *Ocimum sanctum* (Tulsi) in mice : possible mechanisms involved.
*J. Ethnopharmacol.*, **88**(2–3) : 293 – 296.


Composition of the essential oil of Ocimum sanctum L. grown in Poland during vegetation.

Essential oil yield and quality of methyl eugenol rich *Ocimum tenuiflorum* L.f. (syn *Ocimum sanctum* L.) grown in south India as influenced by method of harvest.


Protein measurement with Folin’s phenol reagent.

Leavitt, W.W., Chen, JJ. and Allen, T.C. (1977)
Regulation of progesterone receptor formation by estrogen action.

Immunostimulatory effect of leaf extract of *Ocimum sanctum* Linn. in *Oreochromis mossambicus* (Peters).
*Hydrobiologia*, 430 : 113 – 120.

Antifertility investigations on the crude chloroform extract of *Carica papaya* Linn. seeds in male albino rat.

Loundas, D.D. and Bridges, R.S. (1986)
Length of prolactin priming differentially affects maternal behaviour in female rats.


Studies on some psychopharmacological activities of *Ocimum sanctum* root extract.

Effect of *Ocimum sanctum* root extract on swimming performance in mice.

*Ocimum sanctum* Linn. – a study on gastric ulceration and gastric secretion in rats.


Mukherjee, B.P. and Roy, U. (1990)
Neuropharmacological profile of herbal medicine formulation (Trasina) with special
reference to antistress activity.

Immunotherapeutic potential of Ocimum sanctum (L) in bovine sub clinical mastitis.

Ameliorative effects of Ocimum sanctum in sciatic nerve transaction – induced
neuropathy in rats.
J. Ethnopharmacol., 120(1) : 56 – 62.

Nadkarni, G.B. and Patwardhan, V.A. (1952)
Fatty oil from the seeds of Ocimum sanctum Linn. (Tulsi).


and Mohan L. (2007)
Effect of NRANX-C (a polyherbal formulation) on haloperidol induced catalepsy in
albino mice.

Mineral content of some medicinal plants used in the treatment of diabetes mellitus.

Investigation of Glucose and Lipid profile in Streptozotocin induced Diabetic Rat.
Abstracted in 4th ANRAP (Asian Network of Research on Antidiabetic Plants),

Cell proliferation and natural killer cell activity by polyherbal formulation, Immu-21 in
mice.

A comparative study on formation of flavonoid, tannin, polyphenol contents in
ontogenesis of Ocimum basilicum L.
New constituents from *Ocimum sanctum*.  

Norusis, M.J. (1997)  

Nicotine exposure affects mother's and pup's nutritional, biochemical and hormonal profiles during lactation in rats.  
*J. Endocrinol.*, 205(2) : 159-170.

Major *Ocimum* (Tulsi) species of Chhattisgarh, India, http://www.botanical.com/site/ 
column-poudhia/80-tulsi.htm.

Flowers of *Hibiscus rosa-sinensis*, a potential source of contragestive agent.III: Interceptive effect of benzene extract in mouse.  
*Contraception*, 34(5) : 523-536.

*Ocimum sanctum* leaf extract in the regulation of thyroid function in the male mouse.  

Oxytocin induces maternal behavior in virgin female rats.  

Screening of in–vitro antibacterial activity of *Teminalia chebula*, *Eclapta alba* and *Ocimum sanctum*.  

Therapeutic uses of *Ocimum sanctum* Linn (Tulsi) with a note on eugenol and its pharmacological actions: a short review.  

Chemopreventive activity of *Ocimum sanctum* seeds oil.  
*J. Ethnopharmacol.*, 72(1–2) : 29 – 34.
Antimicrobial activity of essential oils of some Ocimum spp. and clove oil. 

The acute and chronic effect of Li on serum testosterone in rats. 
*Communication in Psychopharmacology*, 4 : 142-152.

Inhibition by an extract of *Ocimum sanctum* of DNA binding activity of 7, 12 dimethylbenz (a) anthracene in rat hepatocytes in vitro. 


Effect of *Ocimum sanctum* leaf powder on blood lipoproteins, glycated proteins and total amino acids in patients with non-insulin dependent diabetes-mellitus. 

Effect of Tulasi(*Ocimum sanctum*) leaf powder supplementation on blood sugar levels, serum lipids and tissue lipids in diabetic rats. 
*Plant foods Hum Nutri*; 50:9-16.

Rajeshwari, S. (Ed.) (1992) 

Volatile constituents of the leaves of *Ocimum sanctum* L. 

The in vitro antimicrobial efficiency of essential oils. 

Progesterone receptor in rabbit uterus. I. Characterization and estradiol-17β augmentation. 
*Endocrinol.*, 92 : 1229-1240.
Noise stress induced brain neurotransmitter changes and the effect of Ocimum sanctum (Linn) treatment in albino rats.

Prevention of insulin resistance by ingesting aqueous extract of Ocimum sanctum to fructose-fed rats.

Effect of feeding Ocimum sanctum (Tulsi) leaves on fertility in rabbits.

Reitman, S. and Frankel, S. (1957)
ALT (SGPT) Colour.

Chemical characterization of Basil (Ocimum spp.) found in the markets and uses in traditional medicine in Brazil.
*Economic Botany*, 54(2) : 207-216.

Psychobiology of maternal behaviour among humans.

Interference in reproductive behaviour and changes in serum Luteinizing hormone concentration due to lithium. XXXII Int. Physiol. Congress, Glasgow.

The effects of lithium on reproductive physiology and maternal behavior in rats.

Saillenfait, A.N. and Vannier. (1988)
Methodological proposal of behavioural teratogenicity testing : Assessment of propxyphene, chioromazine and vitamins – A positive controls.

Preliminary psychopharmacological evaluation of Ocimum sanctum leaf extract.
*J. Ethnopharmacol.*, 28(2) : 143 – 150.

Oxidative stress in brain and antioxidant activity of Ocimum sanctum in noise stress.
*Neurotoxicology*, 28(3) : 679 – 685.
Effects of short term administration of Tulsi leaves on sexual behaviour in female rats.

A comparative study of the hypoglycemic action of the seeds of the fresh leaves of *Ocimum sanctum* (Tulsi).

Changes in the blood lipid profile after administration of *Ocimum sanctum* (Tulsi) leaves in the normal albino rabbits.

A report on the effects of *Ocimum sanctum* (Tulsi) leaves and seeds on blood and urinary uric acid, urea and urine volume in normal albino rabbits.


Sekhawat, P.S., Prasada, R. (1971)
Antifungal properties of some plant extracts II Growth inhibition studies.

Effects of *Ocimum sanctum* Linn. on noise induced changes in the plasma corticosterone level.
*Indian J. Physiol. Pharmacol.*, 41:139-143.

Effect of *Ocimum sanctum* Linn on the changes in central cholinergic system induced by acute noise stress.
*J. Ethnopharmacol.*, 96(3), 477-482.

Mechanism of anti-stress activity of *Ocimum sanctum* Linn., eugenol and Tinospora malabarica in experimental animals.

Anti-tumor promoting activity of decoctions and expressed juices from Phillipine medicinal plants.
Antispermatogenic effect of *Ocimum sanctum*.

Proactive effect of (*Ocimum sanctum*) on lipid per-oxidation in stress induced by anaemic hypoxia in rabbits.

Oxytocin-dopamine interactions mediate variations in maternal behaviour in the rat.
*Endocrinology.*, 151(5) : 2276-2286.

Sharma, G. (1983)
Antiashmatic effect of *Ocimum sanctum*.

Cardioprotective potential of *Ocimum sanctum* in isoproterenol induced myocardial infraction in rats.

Sheeja, E., Joshi, S.B. and Jain, D.C. (2009)
Antiovulatory and estrogenic activity of *Plumbago rosea* leaves in female albino rats.

Evaluation of antioxidant and wound healing effects of alcoholic and aqueous extract of *Ocimum sanctum* Linn in rats.

Wound healing activity of *Ocimum sanctum* Linn with supportive role of antioxidant enzymes.

In vitro activity of eugenol, an active component from *Ocimum sanctum*, against multiresistant and susceptible strains of *Neissesia gonorrhoeae*.

Preliminary studies on activity of *Ocimum sanctum*, *Drynaria quercifolia* and *Annona squamosa* against *Neissesia gonorrhoeae*.
*Sex Terms Dis.*, 32(2) : 106 – 111.
Antigenotoxic effect of *Ocimum sanctum* L. extract against cyproterone acetate induced genotoxic damage in cultured mammalian cells.

Protective role of *Ocimum sanctum* infusion against norethynodrel – induced genotoxic damage in cultured human peripheral blood lymphocytes.
*J. Indian Soc. Toxicol.*, 2(2).

Drugs from plants : Global resurgence opens new opportunities.

In book: Tulsi, the mother medicine of nature. International institute of herbal medicine. Lucknow, India.

Effect of antistress plants on biochemical changes during stress reaction.

Anti-asthmatic and anti-inflammatory activity of *Ocimum sanctum* Linn.

Evaluation of anti-inflammatory activity of fatty acids of *Ocimum sanctum* fixed oil.

Toxicological studies of the fixed oil of *Ocimum sanctum* Linn. (Tulsi).

Effects of oral routes administration on the anti inflammatory activity of fixed oil of *Ocimum sanctum* Linn (Tulsi).
*Ind. J. Pharmacol.*, 28(1) : 45.

Evaluation of the gastric anti-ulcer activity of fixed oil of *Ocimum sanctum* (Holy Basil).
*J. Ethnopharmacol.*, 65(1) : 13 – 19.

Singh, S., Majumdar, D.K. and Rehan, H.M.S. (1996a)
Evaluation of anti-inflammatory potential of fixed oil of *Ocimum sanctum* (holy basil) and its possible mechanism of action.


Talalay, P. (1962)

The Merck Index. (1996)
Published by Merck Research Laboratories, Division of Merck and Co. Whitehouse Station, NJ.

Endophytic bacteria from *Ocimum sanctum* and their yield enhancing capabilities.

Effect of *Ocimum sanctum* leaf extract on hepatotoxicity induced by antitubercular drugs in rats.

Effect of *Ocimum sanctum* Linn. on normal and dexamethasone suppressed wound healing.

Modulation of glutathione and antioxidant enzymes by *Ocimum sanctum* and its role in protection against radiation injury.

A comparative study of radioprotection by Ocimum flavonoids and synthetic aminothiol protectors in the mouse.

Radiation protection by the Ocimum flavonoids oriention and vicenin: mechanisms of action.

Varley, H. (1975)

Post-coital antifertility activity of *Hibiscus rosa-sinensis* Linn. roots.
*Evid Based Complement Alternat Med.*, 5(1) : 91-94.
*J. Ethnopharmacol.*, 79(1) : 95–100.

Ethanolic extract of *Ocimum sanctum* leaves partially attenuates streptozotocin-induced alteration in glycogen content and carbohydrate metabolism in rats.
*J. Ethnopharmacol.*, 90 : 155–160.

Essential oil composition from twelve varieties of Basil (*Ocimum* spp.) grown in Colombia.

Evaluation of in vitro antimicrobial activity of Thai basil oils and their micro-emulsion formulas against *Propionibacterium acnes*.


Radiation protection of human lymphocyte chromosomes in vitro by orientin and vicenin.

Anti-fertility effects of embelin in female Sprague-Dawley rats, may be due to suppression of ovarian function.

Comparison of improved precipitation methods for quantification of high density lipoprotein cholesterol.

Wisdom, G.B. (1976)

Antifertility effect of aqueous extract of seeds of *Cassia fistula* in female rats.
*Advances in Contraception*, 15 : 293-301.

ABSTRACT PUBLICATIONS RELATED TO MODULATION OF REPRODUCTIVE BEHAVIOUR OF FEMALE ALBINO RAT WITH *OCIMUM SANCTUM* LINN. (TULSI)
Changes in the reproductive behaviour of albino rat with herbal medicine *Ocimum sanctum* (Tulsi). Paper presented in XIII Annual Conference of the Physiological Society of India, 2002 and awarded Gold Medal (Vidyasagar University Medal) for best research paper (poster) presentation.


(i) *Ocimum sanctum*: Does it play a role as antifertility agent; (ii) Changes of ovarian 17-β hydroxysteroid dehydrogenase and Δ5-3β-hydroxysteroid dehydrogenase enzymes level after oral administration of *Ocimum sanctum* leaf extract in albino rat. (iii) Effect of *Ocimum sanctum* on behavioural and hormonal modulation of pregnant and lactating albino rats. Papers presented in International Symposium on medicinal plants and herbal products in Biomedicine and their efficacy in the present era and XXVI Annual Conference of Indian Association of Biomedical Scientists, 2005.
Changes In The Reproductive Behaviour Of Albino Rat With Herbal Medicine Ocimum sanctum (Tulsi)

Binata Nayak and Uma Roy

Department of Food & Nutrition
Viharilal College of Home Science, University of Calcutta
20-B Judges Court Road, Kolkata-700 027

Inspite of the considerable development in contraceptive technology search after the antifertility agent in plants continues to be potential area of investigation. We can turn to our vast heritage of folklore and traditional medicine, which contain many references to contraceptive herbal formulations. The outcome of the literature survey has been provided discrete information on regarding some possible antifertility properties of the herb Ocimum sanctum The present study demonstrated that administration of Ocimum sanctum extract induced delayed estrous cycle indicating primary interference in the activity of gonadotrophin but score of copulatory behaviour remain unchanged indicating neural mechanism involved in mating behaviour was unaltered. Reduction in corpus luteum after extract therapy indicating the distribution of ovulation of same animal. The results of the experiments were associated with simultaneous measurement of the increased weight of the adrenal gland and the concentration of ascorbic acid indicating the function of steroidal hormone in adrenal cortex and increase in weight and shape of reproductive organ eg. uterus and ovary may be due to accumulation of fat. All these data have shown a correlation between Ocimum sanctum extract therapy and changes in the reproductive behaviour indicating probable antifertility properties of this herb.
4th ANRAP
International Seminar
Asian Network of Research on Antidiabetic Plants (ANRAP)

KOLKATA, INDIA, JANUARY 16 - 18, 2004
Investigation of Glucose and Lipid Profile in Streptozotocin-induced Diabetic Rat

Ocimum sanctum, Tulsi, (family-Labiatae) a holy basil, has been shown to possess number of pharmacological effects, eg: antimicrobial, cardioprotective, immunomodulatory etc. Earlier observation has shown that O. sanctum has moderate hypoglycemic activity in hyperglycemic state of diabetic rat. Present investigation was designed to evaluate some serum biochemical changes in animal model of streptozotocin induced diabetic rat. Result shows that the extract has influence on blood glucose and lipid profile such as triglyceride, cholesterol, LDL, HDL and VLDL level in experimental animal. The present experiment indicates that the extract with hypoglycemic activity possess simultaneous efficacy to normalise the lipid state of streptozotocin induced diabetic rat.
Objective: To study the effect of feeding Ocimum sanctum (Tulsi) leaves extract along with normal diet on modulation of reproductive behaviour with special reference to modulation of steroidal and reproductive hormonal level of adult fer Wister rat.

Methods: Experimental animals were treated with aqueous extract of tulsi leaves at 1 and 2 g/animal doses. Reproductive behaviour e.g. estrous cycle and copulatory behaviour of both normal and treated animal was observed in terms of score. Simultaneous estimation of steroidal hormonal level estrogen, progesterone, testosterone and prolactin, FSH, LH was estimated. Microscopically and macroscopically changes of reproductive organs and adrenal gland were also studied in same animal.

Results: Prolongation of diestrous stage from 1 to 8 days was observed. But score of the copulatory behaviour on estrous state remain unchanged. Reduced number of corpus luteum count and cellular changes of endometrial wall and adrenal glands were recorded. Increased organ weight of uterus, ovary and adrenal glands indicated influence of this leaf extract on the reproductive organ on female albino rat. Further modulations of steroidal and reproductive hormonal levels supports possible role of O. sanctum on reproductive behavioural homeostasis.

Conclusions: O. sanctum modulates reproductive behaviour in rats.
"INTERNATIONAL SYMPOSIUM ON
MEDICINAL PLANTS AND HERBAL PRODUCTS IN
BIOMEDICINE AND THEIR EFFICACY IN THE PRESENT ERA"
&
XXVI ANNUAL CONFERENCE OF
INDIAN ASSOCIATION OF BIOMEDICAL SCIENTISTS

NOVEMBER 25-27, 2005
**Ocimum sanctum**: DOES IT PLAY A ROLE AS ANTI-FERTILITY AGENT?

Binata Nayak, Uma Roy and Arun K. Ray*

*Dept. of Animal Physiology, Bose Institute, Kolkata-700 054

Recent evidences indicate some antifertility properties of *Ocimum sanctum* (Tulsi), but no thorough investigation has been carried out. In view of the fact studies have been undertaken to demonstrate any contraceptive role of the plant in female adult rats. Administration of aqueous extract of tulsi leaves at 200mg and 400 mg/kg/day doses through oral route for 15 days showed alterations in serum cholesterol level, 17β-hydroxysteroid dehydrogenase and Δ5-3β-hydroxysteroid dehydrogenase activities of ovary and serum estrogen, progesterone, testosterone, LH, FSH and Prolactin levels. The above mentioned alterations were found to be dose-dependent, and of biphasic in nature in some cases. The histological observations also denoted reduced ovarian and uterine function with prolongation of the diestrous state in the animals. Moreover, the study indicated rise of ascorbic acid level in adrenal gland and predicted its hypofunction. All the changes as mentioned above are indicative of an attenuated functional state of pituitary and ovary in the tulsi-treated condition in rat.
CHANGES OF OVARIAN 17-BETA HYDROXYSTEROID DEHYDROGENASE AND DELTA-5-3-BETA HYDROXYSTEROID DEHYDROGENASE ENZYMES LEVEL AFTER ORAL ADMINISTRATION OF Ocimum sanctum LEAF EXTRACT IN ALBINO RAT.

Riddhi Gupta and Binata Nayak

Department of Home Science
University of Calcutta
20 B. Judges Court Road, Kolkata-700 027
Phone no.- 2479 5594

Greater emphasis is being lead in recent years to find out safe and effective oral drugs for controlling human fertility in view of the increasing pressure of population. Apart from attempts to finding effective chemical drugs of folklore medicine are also watched carefully and extensively for their possible efficacy in this respect. But no detailed work on female reproductive system has so far been reported, on antifertility effect of Ocimum sanctum leaves. Therefore the present area of investigation is effect of Ocimum sanctum on the enzymatic as well as other biochemical level of female albino rat.

In the present study oral administration of repeated, graded Ocimum sanctum leaf extract at the doses of 200 to 400 mg/kg/day for 15 days influence the female hormonal level, indicated by prolongation of the diestrous stage. Simultaneously decreases of cholesterol level of serum as well as utilization of two vital ovarian steroid metabolic enzymes from cholesterol to estradiol pathway were observed. These results were supported by increment of serum estrogen level of the same animal. 17- beta hydroxysteroid dehydrogenase and delta-5-3-beta hydroxysteroid dehydrogenase indicate that this herbal extract influences the biosynthesis and metabolic state of female steroidal hormone level of albino rat. The result indicated the probability of finding the efficacy of this indigenous medicine for effective fertility control in reproductive function.
**EFFECT OF *Ocimum sanctum* ON BEHAVIORAL AND HORMONAL MODULATION OF PREGNANT AND LACTATING ALBINO RATS.**

Isita Sanyal and Binata Nayak

*Department of Home Science*

20B, Judges Court Road

P.O. Alipore, Kolkata 700027

E-mail: binata_nayak@yahoo.com

*Ocimum sanctum* Linn (Tulsi) of Lamiaceae family has been mentioned in Indian system of traditional medicine for its great value as adaptogenic, antibacterial, analgesic and antiulcerogenic agent. Early published relevant literatures have shown the effect of *Ocimum sanctum* on reproductive performance of female albino rats. Further, effect of this leaf extract on maternal hormonal and behavioral changes of pregnant and nursing albino rats were adopted.

The result of the present study indicated that reduced number of Low Birth Weight babies and maternal indifferences about the neonates. Further observation on maternal behavior showed passiveness of the lactating mother to feed their babies. In few cases mother showed rather aggressive behavior towards their neonates. Simultaneous estimation of reproductive hormones namely FSH, LH, Q₂, Progesterone, Testosterone and prolactin levels are modulated after *Ocimum sanctum* treatment in pregnant and lactating rats which may be the cause of behavioral changes of the animals. All these data considered together suggest a possible role of *Ocimum sanctum* for the changes during pregnancy and maternal passiveness which may be due to the alteration of Gonadotropin hormones after *Ocimum sanctum* treatment in pregnant and lactating animals.