

# **SOME ASPECTS OF THE RELATIONSHIP BETWEEN RAT BITE AND HUMAN VITILIGO**



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## ABSTRACT

Susrutha, 2500 years ago, declared in his Susrutha Samhitha that rat semen contains toxins, and that these toxins could enter the human body through a bite or scratch made by a rat using its teeth or claws already contaminated with it. He further proclaims that such an infiltration could lead to several diseases including vitiligo. Many traditional Ayurvedic physicians of Sri Lanka too are of the view that vitiligo is one of the diseases that could develop as a consequence of the above mode of rat semen infiltration into the human body.

12 female rats in natural prooestrous (n=12) oestrous (n=12) and dioestrus (n=12) and hormone induced receptive female rats (n=12) were individually paired with male rats for one hour. Sexual behavioural parameters of these rats were monitored and sperm count in the mouth wash and claw wash were made. In addition, sperm count were made on mouth and claw washes of randomly selected isolated male rats (n=12) and prooestrous female rats (n=6) following pairing with male rats. 300 Vitiligo patients and 300 non vitiligo patients were screened using a questionnaire. A wild rat (*Rattus norvegicus*) was paired with a female laboratory rat. Following ejaculation, a vaginal flush with semen was collected and diluted with saline to obtain 3 samples each counting of 0.15, 1.5 and 2.0 million of spermatozoa per ml respectively. 500  $\mu$ l of vaginal flush with semen was emulsified with 500  $\mu$ l of Freund complete adjuvant and was injected to experimental rabbits (B,C,D). After 14 days a second dose was given. Observations for signs of toxicity were carried out for six months from the first immunization. Rabbit's serum were tested for any cross

reactivity with rat semen using Western Blot method.

In the experiment of the paired animals (upto 1h), sperm were detected on the mouth wash of male paired with prooestrus ( $3.35 \pm 0.78$  sperm/microscopic field), oestrus ( $2.56 \pm 0.44$  sperm/microscopic field) and hormonally primed female rats ( $0.59 \pm 0.11$  millions sperm/ml). The sexual behavioural parameters monitored were evident in the males paired with prooestrus, oestrus and hormonally primed females to different degrees.

The human vitiligo case study clearly showed that there is a significant positive relationship between rat bite and vitiligo. A significant positive relationship was also evident with snake bite and human vitiligo. In the preliminary animal experiment performed to study the antigenicity and toxicity of rat semen antigenicity was evident by the appearance of a special band (55 KDa) in the serum of experimental animals C and D, showing low intense cross reactivity with rat semen. In the rabbits B, C and D, a transient albuminuria, hyperthermia and continuous fur loss was evident.

In conclusion, Maha Rishi Susrutha's declaration, made 2500 years ago that rat semen could infiltrate the human body through a rat bite, has been proved to be scientifically correct. This rat semen infiltration may lead to immunological reactions within the human body, which in turn could precipitate to melanocyte destruction.