

**Final Report / Executive Summary of UGC-major research project,
entitled “Unraveling the biology of sperm storage in the oviduct of female
garden lizard, *Calotes versicolor*” submitted by the Institution**

Sperm storage can be defined as the maintenance of sperm inside a female's reproductive tract for an extended period of time in a viable condition. Sperm storage in the female reproductive tract has been reported in a variety of animals including insects, fishes, amphibians, reptiles, birds, and mammals. With respect to the mechanism involved in the sperm storage, not much has been known. A foreign cell being able to survive in viable condition inside the reproductive tract is a very intriguing feature attracting a lot of attention.

In the present UGC-Major Research Project using the Indian garden lizard, *Calotes versicolor* as a model to unravel the biology of sperm storage the following research findings were made which are summarized as follows.

- The current study provides the first depiction of the ultrastructural features of SST during three phases of the reproductive cycle in *C. versicolor*, which showed cyclical changes in the secretory activity of the epithelial cells lining the SST.
- Live motile sperm were recovered from the uterovaginal region of the oviduct of *C. versicolor* for an extended
- The above research finding resulted in an International publication in the journal –The Anatomical record, entitled “Ultrastructural features of sperm storage tubules in the oviduct of the Indian garden lizard, *Calotes versicolor*”
- In a large majority of the female lizards isolated from males after mating far up to 70 days, the uterovaginal flushings still contained live motile sperm, which provide circumstantial evidence for sperm storage.
- An abundant ~55kDa protein was purified from the uterovaginal flushings that lacked homology to any protein on the NCBI database, this protein reversibly inhibited the motility of washed epididymal sperm of *C. versicolor* in a concentration and time-dependent fashion.
- The effect of ~55kDa protein of uterovaginal flushings on sperm parameters resulted one more International publication “Proteinaceous sperm motility inhibitory factor from the female Indian garden lizard, *Calotes versicolor*” in the journal Reproduction, Fertility and Development.
- The current project provides a platform for further research, where one can look at the molecular mechanism(s) involved in reversible inhibition of sperm motility by ~55-kDa protein

Final Report / Executive Summary Certificate

It is certified that the final report / Executive Summary of Major Research Project (F. No. 42-615/2013 (SR)) entitled “**Unraveling the biology of sperm storage in the oviduct of the female Indian garden lizard, *Calotes versicolor***” by, **Dr. T. Ruth Shantha Kumari**, Dept. of Zoology, St. Philomena’s College Mysuru., has been placed in the Institution Website and Kept in Library for final submission of the report as per the UGC, New Delhi under the scheme of Major Research Project.

(Principal)