

**Summary of UGC Major research Project entitled “Effect of Shatavari (*Asparagus racemosus*) plant on ageing in *Drosophila melanogaster*” sanctioned to Dr. Ashadevi J.S., Department of Zoology, Yuvaraja’s College, University of Mysore, Mysuru.
Project period: 21-07-2012 to 31-12-2015**

The overall project result summarizes that, *Asparagus* is widely used medicinal plant for many therapy, the antioxidant property of *A. racemosus*, garden variety and Shathavari byproduct has been proved by invivo analysis. Invitro analysis of *Asparagus*, both wild and garden variety as well as byproduct of Shatavari; Shatavarigulam has been carried out in *Drosophila melanogaster* to understand the age enhancing property. Longevity of *D.melanogaster* has been measured in different solvent extracts of *Asparagus racemosus* and garden variety of *Asparagus*. The highest total antioxidants was obtained in ethanolic extract, interestingly the highest longevity was noticed in the same. The mean life span was 91 days in extract fed flies, while 65 days in control flies. High dose concentration of the extract treated batches showed highest longevity which increases the longevity by 41 %. Similar such result was also obtained in methanolic extract of garden variety of *Asparagus* fed flies. In byproduct fed flies longevity increased by 28%. Hence, the antioxidants of *Asparagus* increase the life span in *Drosophila melanogaster*. Males were lived longer than females. Not only it increases the longevity, but also it increases the fecundity, prolong rate of development from egg to adult and total viability. The plant also develops resistance to different oxidative stress molecules such as Acrylamide and Paraquat.

The increased longevity is might be due to antioxidant enzymes like SOD, CAT and G₆PD as well as Glutathione (GSH). In the present project few antioxidant enzyme activities were measured in ethanolic and methanolic extract of *Asparagus* supplemented flies in different age intervals. The plant *Asparagus* increases the CAT (in 45 and 60 days aged flies) and G₆PD activity in certain extent. Interestingly, the quantity of glutathione was increased drastically in all the age grouped flies of extract fed batches. *A. racemosus* fed flies showed highest longevity and antioxidant enzyme activities than garden variety of *Asparagus*. Therefore, *A. racemosus* is more potent antiageing herb compared to garden variety of *Asparagus*. The antioxidants of *A. racemosus* increases the CAT and G₆PD activity as well as glutathione amounts, thereby it increases the life span. Ageing mechanism is also can be detected through DNA damage detection, which was carried out

by agarose gel electrophoresis. DNA fragmentation was gradually lost as flies aged, DNA bands streak when fly reach to mortality. DNA streaking was noticed after 75 days in extract fed flies and 60 days in control flies. This proves the antiageing property of *Asparagus racemosus*. The current analysis of age enhancing effect of *A.racemosus* in *D. melanogaster* has provided a base line data for further experiments in mammalian systems, could be one of the best antiageing herbs for human beings in treating many age related diseases.



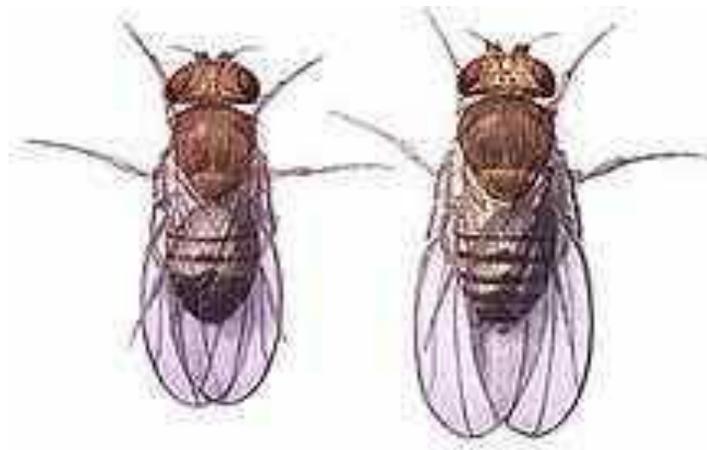
Asparagus racemosus



Asparagus (Garden variety)



By-Product of Shatavari



Drosophila melanogaster