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## Neuroprotective, lifespan and memory enhancing potential of MS-1 compound from *Curculigo orchioides* Gaertn. Rhizome: A study on Alzheimer's disease models of APPL/GAL-4 *D. melanogaster*

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**ABSTRACT** : *Curculigo orchioides* Gaertn., is commonly known as Kali Musli or golden grass which are extensively utilized as a nutritive tonic for strength and for treatment of asthma, skin diseases, neurodegenerative diseases, bronchitis, diarrhoea, dyspepsia, etc., AD (Alzheimer's disease) is one of the most common age-related neurodegenerative diseases. Among today's world population, around 33.9 million people have been affected with AD, and it will be triple over the next 40 years. The main characteristic feature of AD is the gradual decline of a person's memory and ability to learn, reason and difficulty to carry out daily activities due to the accumulation of A $\beta$ 42 (amyloid-beta 42) plaques in the neurons. These amyloid-beta 42 plaques trigger oxidative stress and abnormal signalling in the neuron. Acetylcholinesterase (AChE) is an enzyme involved in non-cholinergic and cholinergic in both the central and peripheral nervous system, most of which is found as a tetrameric form bound to neuronal cell membranes. The biochemical studies indicated that AChE induces amyloid- $\beta$  fibril formation and forms very toxic AChE-A $\beta$  complexes in the brain. Aim: To pre-screen the in vivo neuroprotective, lifespan, and memory-enhancing activity of the MS-1 compound from *Curculigo orchioides* Gaertn. Rhizome using the APPL-GAL4 model organism of *Drosophila melanogaster*. Method: Isolation of MS-1 Compound from rhizome and its analysis by LC-MS, HPLC, FTIR, and C and H-NMR were carried out. The neuroprotective effect of the MS-1 compound of the Rhizome of *Curculigo orchioides* Gaertn. in vivo was evaluated on the APPL-GAL4 model of *D. melanogaster*, a novel model system for screening for anti-Alzheimer disease drugs. During the experiment, we have to conduct biological assay like



**Keywords-** *Curculigo orchioides* Gaertn, APPL-GAL4, Alzheimer's disease, AChE-A $\beta$  complexes.

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