Conclusion
Protection of biomolecules by antioxidants has been described as a longevity determinant process. From the present study, it appears that alterations observed in aged rats such as impaired antioxidant defense system is of paramount importance because it could account for the increased ROS production, the subsequently enhanced oxidative modification of lipids, proteins and nucleic acids. Furthermore, the age-related oxidative stress hampers the activities of ion pump ATPases and also could lead to progressive accumulation of lipofuscin. The results also provide novel evidence showing that NGF, BDNF and oxidative stress can interrelate to affect synaptic plasticity and cognitive function.

Also the present results provide scientific evidence to support the rationale for the use of *Centella asiatica* in decelerating or reversing age-related changes in rat brain regions. Beneficial effects of *Centella asiatica* on brain aging are mediated through their effect on increasing the status of antioxidants. Treatment with *Centella asiatica* in aged rats could also influence the cholinergic and monoaminergic systems as well as the apoptotic and intercellular signaling, which in turn, could have led to higher cognitive performance of the treated animals. This study suggests that *Centella asiatica* may counteract the adverse effects of aging by acting as a potent antioxidant through their redox properties, which allow them to act as reducing agents, hydrogen donor and metal chelator. *Centella asiatica* represent an attractive, inexpensive, readily available, neuroprotective, natural antioxidant to neutralise the pathological effects of brain aging.