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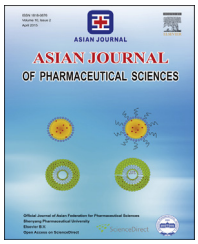

Neuroprotective action of *Gmelina arborea* (bark) and *Punica granatum* (peel) extracts

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Alzheimer's disease (AD) is the most common form of the dementia which occurs among the older people above the age of 60 years. It is the neuropsychiatric disorder with progressive neurodegeneration, dementia and decline of cognitive deterioration. It is also associated with behavioral disturbances [1]. AD is the fourth leading cause of death in Europe and U.S.A. It is going to become a new epidemic threat to human civilization in the coming century. Elevated oxidative stress, reduced acetylcholine and also an increased activity of acetylcholinesterase is reported in patients with AD. Acetylcholinesterase inhibitor which enhances cholinergic transmission by reducing the enzymatic degradation of acetylcholine is actually the most important way for reducing the risk of AD [2]. The presently available drugs for the treatment of AD are symptomatic and also produce adverse reaction in the patients. Herbal remedies have becoming more and more popular in the recent years and drawn the attention of scientific community because of its excellent effect and no side effects. The present work was undertaken to assess neuroprotective activity of *Gmelina arborea* (Bark) and *Punica granatum* peel extract. Antioxidant and acetylcholinesterase inhibition effect of aqueous extracts of both were analyzed. Antioxidant assay (DPPH assay) shows the IC_{50} values of 32.89 μg, 28.25 μg (Fig. 1A) and acetylcholinesterase inhibition assay shows IC_{50} values of 387.5 μg and 201.3 μg (Fig. 1B). Both the extracts show more promising results hence can be used in combination to have the synergistic effect on both the pathological hallmarks of the disease. Hence, it can be concluded that both extracts may be neuroprotective in cognitive dysfunctions [3].

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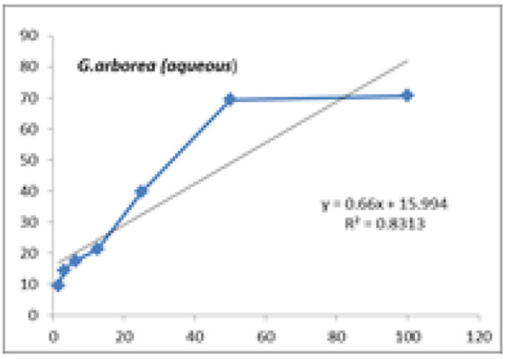
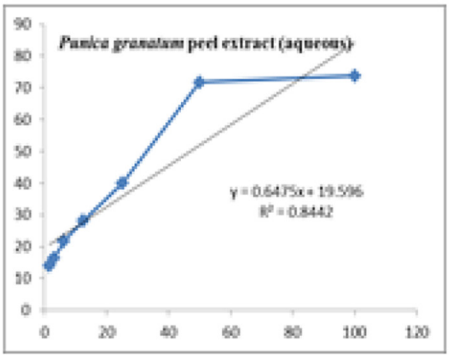
(A)

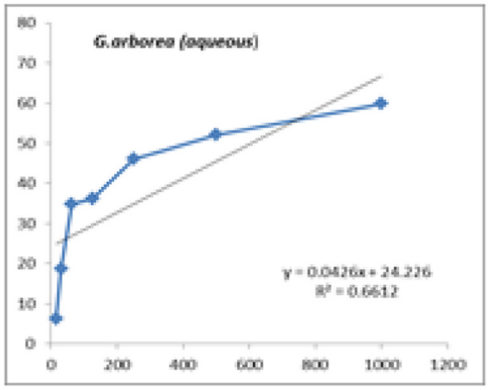
Extracts	IC 50 Value
G. arborea	32.89µg
P. granatum	28.25 µg
Ascorbic acid	3.238 µg





(B)

Extracts	IC 50 Value
G. arborea	387.5 µ g
P. granatum	201.3 µ g
Eserine salicylate (standard)	2.378 µ g



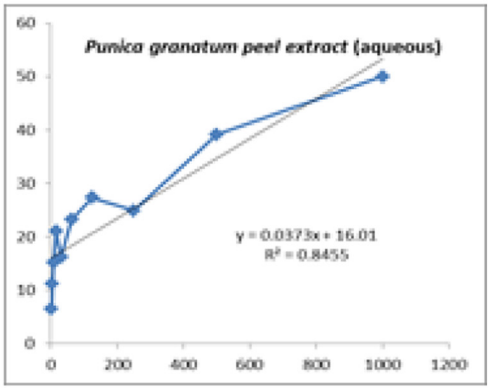


Fig. 1 – *In vitro* antioxidant assay (DPPH assay) (A) and *in vitro* AChE inhibitory assay (B).

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