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An experimental study on nootropic activity of onion extracts

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Nootropics are alleged to work by increasing the levels of neurochemicals in the brain especially cholinergic transmission or by neutralizing free radicals. They usually comprise of substances obtained from plant components and are even available over the counter as health food and nutritional supplements. Onion (*Allium cepa*) is a known traditional medicinal plant that has been consumed for its putative nutritional and health benefits for centuries. Onion is a rich source of several phytonutrients such as thiosulphinate, volatile sulfur compounds and many polar components of phenolic and steroidal origin. It is rich in flavonoids, especially quercetin, which have been reported to be potent anti-oxidants. In the present study fresh onion juice (1 ml/kg p.o) was administered to a group of mice and (0.5 ml/kg p.o) methanolic extract of onion was administered to another group of mice. Piracetam (150 mg/ kg body wt p.o) was used as standard to evaluate the nootropic activity. Its behavior on mazes like elevated plus maze, morris water maze and avoidance behavior on step down type passive avoidance models were performed. The evaluation parameter, transfer latency, showed significant ($p<0.01$) change in methanolic extract when compared with the aqueous extract. Whole brain acetyl cholinesterase enzyme activity was performed and the result indicates that the methanolic extract of onion might prove to be useful as a memory enhancer. The rich storehouse of anti-oxidants in the form of flavonoids and its ability to improve the cholinergic transmission may be attributed to the nootropic activity of onion.