Effects of shilajit and its active constituents on learning and memory in rats

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Article first published online: 18 JAN 2006
DOI: 10.1002.ptr.2650070109

Abstract

Effects, in albino rats, of a processed shilajit (Sh-P), native shilajit (Sh-N) (unprocessed water-soluble fraction), and a preparation consisting of a mixture of ethyl acetate extractives (EE) and fulvic acids (FAs) from Sh-P, were evaluated in (i) an active avoidance, (ii) elevated plus-maze and (iii) open-field behaviour paradigms. This study was undertaken to appraise the validity of use of shilajit as an Ayurvedic medha rasayan (enhancer of learning and memory). Sh-P and its active constituents (EE-FAs) significantly augmented learning acquisition and memory retrieval in the battery of tests, designed for this purpose, according to accepted tenets. Sh-N, on the other hand, produced erratic responses (both augmentative and retardative) in the above parameters. The U-shaped dose-responses shown by Sh-P and EE-FAs are reminiscent of agents that improve cognitive functions. Additionally, Sh-P and EE-FAs, in high doses (25–50 mg/kg p.o.), produced significant antianxiety effect in the open-field behaviour test. The present and earlier findings seem to suggest that the action of shilajit is mediated by facilitating communication between the immune and the central nervous systems. These findings reinforce our earlier postulate that purification of shilajit is an imperative necessity to ensure its optimum therapeutic effect. This would also safeguard from potential health risks associated with prolonged ingestion of raw shilajit containing free radicals and fungal toxins.