

Abstract

Cocoa powder and chocolate contain numerous substances among which there is a quite large percentage of antioxidant molecules, mainly flavonoids, most abundantly found in the form of epicatechin. These substances display several beneficial actions on the brain. They enter the brain and induce widespread stimulation of brain perfusion. They also provoke angiogenesis, neurogenesis and changes in neuron morphology, mainly in regions involved in learning and memory. Epicatechin improves various aspects of cognition in animals and humans. Chocolate also induces positive effects on mood and is often consumed under emotional stress. In addition, flavonoids preserve cognitive abilities during ageing in rats, lower the risk for developing Alzheimer's disease and decrease the risk of stroke in humans. In addition to their beneficial effects on the vascular system and on cerebral blood flow, flavonoids interact with signalization cascades involving protein and lipid kinases that lead to the inhibition of neuronal death by apoptosis induced by neurotoxicants such as oxygen radicals, and promote neuronal survival and synaptic plasticity. The present review intends to review the data available on the effects of cocoa and chocolate on brain health and cognitive abilities.