

Studies on Blackcurrants and Brain Health

Test: Effects of anthocyanins and other phenolics of boysenberry and blackcurrant as inhibitors of oxidative stress and damage to cellular DNA in SH-SY5Y and HL-60 cells

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Study: To investigate whether anthocyanins and other phenolics present in blackcurrants and boysenberries are effective in protecting cells against the oxidative damage induced by hydrogen peroxide (H₂O₂).

Results: The data showed that SH-SY5Y human neuroblastoma cells were protected against H₂O₂-induced toxicity by the anthocyanins and phenolic fractions. Anthocyanins and phenolic fractions of blackcurrant were better at protecting DNA of HL-60 human promyelocytic cells from damage than similar fractions from boysenberry.

Conclusion: The phenolic extract of blackcurrant demonstrated the highest protective effect against H₂O₂-induced neurotoxicity; oxidative stress and DNA damage may be a good candidate for inclusion into a processed functional food.

Title: Cytoprotective effects of anthocyanins and other phenolic fractions of Blackcurrant and Boysenberry on dopamine and amyloid β -induced oxidative stress in transected COS-7 cells

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Study: Phenolic phytochemicals are increasingly believed to be beneficial to health and possess biochemical and medicinal properties including antioxidant, anti-allergic, anti-inflammatory, anti-viral, anti-proliferation, and anti-carcinogenic activities. Vulnerability and damage to the brain from oxidative stress (OS) can result in neurodegenerative diseases such as Alzheimer's disease. COS-7 cells have the greatest sensitivity to OS, and we assessed the ability of anthocyanins and phenolic fractions of blackcurrant and boysenberry to ameliorate the deleterious effects of the amyloid β ₂₆₋₂₃ and dopamine on calcium buffering of COS-7 cells.

Results: Extracts of blackcurrant and boysenberry showed significant protective effect and restored the calcium buffering ability of cells that had been subject to OS induced by dopamine. Blackcurrant polyphenolics showed a higher protecting effect against dopamine than boysenberry.

Conclusion: Our results provide further evidence for the protective effects of berries against the putative neurotoxic effect of dopamine in brain cells.