Naringenin is a phytoestrogen and flavanone found in citrus fruits. Naringenin exhibits antioxidative, anti-inflammatory, hepatoprotective, neuroprotective, immunomodulatory, anti-metastatic, anti-asthma, anti-allergic, anti-fibrotic, anti-metastatic, antiviral, antidepressant, anticancer, and gastrointestinal motility modulating activities. Naringenin inhibits oxidative damage in animal models of Alzheimer’s disease and protects against 6-OHDA-induced neurodegeneration by increasing levels of Nrf2 in animal models of Parkinson’s disease. In animal models of CCl4-induced liver injury, naringenin inhibits lipid peroxidation, increases levels of glutathione, HO-1, and Nrf2, and decreases levels of TNF-α, COX-2, and iNOS. In macrophages, naringenin alters expression of toll-like receptors 2 and 4 (TLR2, TLR4) and CD86; it also inhibits Treg-induced suppression and limits metastasis in animal models. In other animal models, naringenin inhibits allergen-induced airway inflammation. Naringenin also decreases levels of α-SMA, collagen type I, fibronectin, and ERK1/2 in fibroblasts. In leukemia cells, naringenin induces apoptosis, decreases the mitochondrial membrane potential and levels of Bcl-2, and increases levels of Bax. This compound also shows benefit in the tail suspension test and inhibits hepatitis C viral assembly.

References


