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Broccoli Sprout/Broccoli Seed Extract Supplement

National Cancer Institute

Source

National Cancer Institute. *Broccoli Sprout/Broccoli Seed Extract Supplement*. NCI Thesaurus. Code C128293.

A tablet-based nutritional supplement composed of a mixture of sprout and seed extracts of the cruciferous vegetable broccoli, with potential chemopreventive and antioxidant activities. Broccoli sprout/broccoli seed extract contains a high amount of both the glucosinolate glucoraphanin and the enzyme myrosinase, which catalyzes the production of glucoraphanin to sulforaphane. Upon administration of the broccoli sprout/broccoli seed extract, sulforaphane activates the transcription factor NF-E2-related factor 2 (Nrf2), a member of the basic leucine zipper family, which binds to and activates antioxidant-response elements (AREs). Subsequently, activated AREs promote the transcription of antioxidant and detoxifying enzymes, particularly glutathione-S-transferase and NAD(P)H dehydrogenase [quinone] 1 (NAD(P)H:quinone oxidoreductase; NQO1), resulting in the detoxification of highly reactive carcinogens. This accelerates the elimination of carcinogens, may protect against cellular damage, and prevents cancer formation. AREs are cis-acting regulatory enhancer elements found in the 5' flanking region of many phase II detoxification enzymes.