

Cruciferous vegetables: dietary phytochemicals for cancer prevention

ABSTRACT

Relationships between diet and health have attracted attention for centuries; but links between diet and cancer have been a focus only in recent decades. The consumption of diet-containing carcinogens, including polycyclic aromatic hydrocarbons and heterocyclic amines is most closely correlated with increasing cancer risk. Epidemiological evidence strongly suggests that consumption of dietary phytochemicals found in vegetables and fruit can decrease cancer incidence. Among the various vegetables, broccoli and other cruciferous species appear most closely associated with reduced cancer risk in organs such as the colorectum, lung, prostate and breast. The protecting effects against cancer risk have been attributed, at least partly, due to their comparatively high amounts of glucosinolates, which differentiate them from other vegetables. Glucosinolates, a class of sulphur- containing glycosides, present at substantial amounts in cruciferous vegetables, and their breakdown products such as the isothiocyanates, are believed to be responsible for their health benefits. However, the underlying mechanisms responsible for the chemopreventive effect of these compounds are likely to be manifold, possibly concerning very complex interactions, and thus difficult to fully understand. Therefore, this article provides a brief overview about the mechanism of such compounds involved in modulation of carcinogen metabolising enzyme systems.

Keyword: Cruciferous vegetables; Glucosinolates; Isothiocyanates; Chemopreventive; Carcinogen