From Plants to Oncology: The Emerging Role of Kaempferol in Cancer Management

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Abstract:

Epidemiological studies shows that eating more fruits and vegetables is linked to a lower risk of getting some malignancies, such as breast, bone, and cervical cancers. Some of the bioactive substances that may be responsible for this protective action are kaempferol, a flavonoid aglycone that is found in many plant-based foods, such as broccoli, cabbage, cauliflower, cumin, moringa leaves, chives, garlic, and bee pollen. Kaempferol has several pharmacological effects, such as being an antidiabetic, antibacterial, anti-inflammatory, antioxidant, cardioprotective, neuroprotective, and especially an anticancer agent. Recent studies have found that eating kaempferol may lower the chance of getting several cancers, including skin, liver, and colorectal cancers. Its anticancer effects include causing apoptosis, stopping the cell cycle at G2/M, lowering indicators of epithelial-mesenchymal transition (EMT), and blocking important signaling pathways including PI3K/Akt. This study puts together the most recent experimental information about how kaempferol and foods high in kaempferol can help prevent cancer. The expanding amount of preclinical data is intriguing, but additional rigorous in vivo research and well-controlled clinical trials are needed to confirm its safety and effectiveness. This kind of information is very important for making future public health recommendations and for the possible development of kaempferol-based treatments.