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Recent updates on anticancer mechanisms of polyphenols

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In today's scenario, when cancer cases are increasing rapidly, anticancer herbal compounds become imperative. Studies on the molecular mechanisms of action of polyphenols published in specialized databases such as Web of Science, Pubmed/Medline, Google Scholar, and Science Direct were used as sources of information for this review. Natural polyphenols provide established efficacy against chemically induced tumor growth with fewer side effects. They can sensitize cells to various therapies and increase the effectiveness of biotherapy. Further pharmacological translational research and clinical trials are needed to evaluate theirs *in vivo* efficacy, possible side effects and toxicity. Polyphenols can be used to design a potential treatment in conjunction with existing cancer drug regimens such as chemotherapy and radiotherapy.

KEYWORDS

cancer, polyphenols, phytochemicals, migration, invasion, pharmacology, anticancer molecular mechanisms

1 Introduction

All happy healthy bodies are alike; every unhealthy human body is unhappy in its way. That is to say, the healthy cells of the human body collaborate on a structural and functional level to maintain the homeostasis and architecture of the body. Alteration of signaling pathways and mechanisms can influence the rate of cell proliferation and the risk of benign or malignant cell proliferation (Ali et al., 2022; Hossain et al., 2022; Javed

Abbreviations: Bax, Bcl2-Associated X Protein; Bcl-2, B-cell lymphoma 2; BCRP, Breast Cancer Resistance Protein; Cyt-c, cytochrome-c; CDH1, cadherin-1; IGFR, insulin-like growth factor receptor; MAPK, mitogen-activated protein kinase; MRP1, multidrug resistance protein1; mTOR, mammalian target of rapamycin; P13K/Akt, phosphatidylinositol 3-kinase/protein kinase B; p53, tumor protein p53; RTKs, receptor tyrosine kinases; RAS: rat sarcoma virus; TNF-α, tumour necrosis factor-alpha; VEGFR2, vascular endothelial growth factor receptor 2,.