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# Herbal Medicine for Glioblastoma: Current and Future Prospects

Imran Khan <sup>1</sup>, Sadaf Mahfooz <sup>1</sup>, Mustafa A Hatiboglu <sup>1 2</sup>

<sup>1</sup> Department of Molecular Biology, Beykoz Institute of Life Sciences and Biotechnology, Bezmialem Vakif University, Yalıköy Mahallesi, Beykoz, Istanbul, Turkey

<sup>2</sup> Department of Neurosurgery, Bezmialem Vakif University Medical School, Vatan Street, Fatih, Istanbul, Turkey

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## Abstract

**Background:** Glioblastoma is one of the most aggressive and devastating tumours of the central nervous system with short survival time. Glioblastoma usually shows fast cell proliferation and invasion of normal brain tissue causing poor prognosis. The present standard of care in patients with glioblastoma includes surgery followed by radiotherapy and temozolomide (TMZ) based chemotherapy. Unfortunately, these approaches are not sufficient to lead a favorable prognosis and survival rates. As the current approaches do not provide a long-term benefit in those patients, new alternative treatments including natural compounds, have drawn attention. Due to their natural origin, they are associated with minimum cellular toxicity towards normal cells and it has become one of the most attractive approaches to treat tumours by natural compounds or phytochemicals.

**Objective:** In the present review, the role of natural compounds or phytochemicals in the treatment of glioblastoma describing their efficacy on various aspects of glioblastoma pathophysiology such as cell proliferation, apoptosis, cell cycle regulation, cellular signaling pathways, chemoresistance and their role in combinatorial therapeutic approaches was described.

**Methods:** Peer-reviewed literature was extracted using Pubmed, EMBASE Ovid and Google Scholar to be reviewed in the present article.

**Conclusion:** Preclinical data available in the literature suggest that phytochemicals hold immense potential to be translated into treatment modalities. However, further clinical studies with conclusive results are required to implement phytochemicals in treatment modalities.

**Keywords:** Glioblastoma; anticancer; chemoresistance; combination therapies; phytochemicals.

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