

# 24<sup>TH</sup> BIOTECHNOLOGY CONGRESS: RESEARCH & INNOVATIONS

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### **Glioblastoma multiforme and Indian medicinal plants**

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**G**lioblastoma Multiforme (GBM), the most aggressive, malignant and common brain tumor with a patient survival rate of fewer than 15 months. Till now, cure as well as, proper standardized treatment of GBM, which can enhance the survival rate, is stagnant. Now scientists are looking back on herbal regimes, worldwide and are attempting to increase the survival and quality of life of GBM patients. Herbal approach to treating various chronic disorders is going on from last many decades. Studies over the therapeutic application of plants in cancer prove to be an effective approach towards it. The appropriate ones used in GBM treatment are mentioned below:

- *Curcuma* species, widely used ingredient in Indian cuisine (haldi), possess various medicinal benefits, from antioxidant property to cancer inhibition. Specifically, in GBM patients, it has been shown to induce autophagy, apoptosis by targeting death signaling pathways (G2/M).
- Ashwagandha (*Withania somnifera*), traditionally used the herb in Ayurveda, known for its antioxidant, immune-stimulant, analgesic, anti-cancerous, and neuro-regeneration etc. properties. In glioblastoma cells, it causes apoptosis, growth arrest and also downregulates the proinflammatory cytokines expression suggests this herb as a potent anti-cancerous approach to GBM.
- One more herb i.e. black soybean, edible bean widely grown for its benefits. In glioma cells, they have been reported responsible for the caspase-mediated cell death and anti-invasive activity of its saponin content. Also, anthocyanins present in soybean promotes autophagy by silencing the atg5 expression which against the oxygen-glucose deprived stress induces cytotoxicity in cells.

So, in the present paper, various Indian herbs have been reviewed and described for their use in brain cancer. The paper includes their pharmacological uses and their targets which are found to be useful for the treatment of brain cancer.

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