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Abstract

Investigation of the Effects of *Momordica charantia* Extract on Cell Survival and Migration in U87G Glioblastoma Cell Line †

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Abstract: Glioblastoma multiforme (GBM) is a type of cancer which has the highest mortality rate among brain cancers (1–2). *Momordica charantia*, known as bitter melon, is a plant its pharmacological activities and nutritional properties. Due to contains bioactive compounds, *M. charantia* is used for cancer treatments, inflammation-related diseases and diabetes (3–4). In this study, it was aimed to investigate the effects of *M. charantia* extract on cell viability, cytotoxicity and migration capacity in U87G cell line. U87G was cultured in DMEM-high glucose containing FBS 10% (v/v) and penisillin-streptomicin 1% (v/v). Cells were incubated at 37 °C in a humidified 5% CO_2 incubator. The cytotoxic effect of *M. charantia* extract was determined by MTT analysis, cell viability by survival analysis and migration by wound-healing analysis. The results were evaluated by using ANOVA and GraphPad Prism7.0 program (GraphPad Software, La Jolla, CA, USA) in three replicates. IC_{50} value of *M. charantia* extract was found 750 µg/mL which is statistically significant (* $p < 0.05$). The extract had an increasing lethal effect at the 16.6% (24 h), 42.6% (48 h), 79.3% (72 h) and 91.6% (96 h). According to the wound-healing analysis, the wound closed at 24 h in the control group and the wound gradually increased depending on time in the extract treated group. According to the results, *M. charantia* extract has a cytotoxic and a significant anti-proliferative effect on U87G. It might be used as therapeutic agent against to GBM. However, in order to understand the effect of *M. charantia* in living organisms, in vivo experiments must be determined.

Keywords: *Momordica charantia*; cytotoxicity; cell viability; migration; glioblastoma