

Effects of Flavonoid Rutin and Ascorbic Acid on Catechol – Induced Cytotoxicity to GL-15 Glioblastoma Cells.

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Flavonoids are secondary plant phenolic metabolites with significant antioxidant and chelating properties. Catechol (CAT) is a metabolite of benzene that generates reactive oxygen species and quinones. The oxidative stress is involved in several diseases of the central nervous system. Ascorbic acid has shown scavenging properties and also inhibited quinones formation. **AIM:** In this study, we investigated the effects of quercetin, rutin and ascorbic acid on CAT-induced cytotoxicity to GL-15 glioblastoma cells. **METHODS:** GL-15 cells were maintained in DMEM supplemented with 10% fetal calf serum, 2 mM L-glutamine, penicillin (100 IU/ml), and streptomycin (100 µg/ml). Cells were treated with CAT (3-1000 µM) for 72 h to determine the EC₅₀. Cell viability was assessed by the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide (MTT) assay. Cells were also treated with CAT in the presence of rutin (0.6-100µM) or ascorbic acid (20 – 3000µM) for 72 h. **RESULTS:** CAT was cytotoxic to GL-15 cells after 72 h (EC₅₀ = 252µM). Ascorbic acid (20-3000µM) and rutin (0.6 -100µM) were not cytotoxic to GL-15 cells after 72h. The cytotoxicity induced by 300µM CAT was reverted by ascorbic acid (20-3000µM). However, the flavonoid rutin (0.6-100µM) increased the cytotoxic effect of CAT. **CONCLUSIONS:** The flavonoid rutin increased CAT-induced cytotoxicity and ascorbic acid protected GL-15 glioblastoma cells *in vitro*. Supported by Fapesb, Capes, CNPq