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Effect of anti-proliferation of *Curcuma longa* extract with MTT test in colorectal carcinoma cancer cell lineMansoor Hidarpoor¹ and Fereidoon Bondarian²¹Islamic Azad University, Yazd, Iran²Islamic Azad University, Tehran, Iran

Curcuma longa is a powdered undergrowth plant from the *Zingiberaceae* family. Curcumin is the main and effective ingredient in turmeric and is the most important pigment in turmeric with a frequency of 50-60%. In this study, HCT-116 colorectal carcinoma cells were cultured in Roswell Park Memorial Institute (RPMI) 1640 medium with 10% Fetal Bovine Serum (FBS) and 1% antibiotic Penicillin Streptomycin (Pen Strep) and cultured after exposure to curcumin and turmeric extract at concentrations of 10, 25 and 50 μ M. The result of these two substances on cells growth was compared with cell survival percentages (by MTT) and total antioxidant capacity (TAC). There was a significant difference in MTT test in all tested groups compared to control group. This indicates that curcumin affects the survival of cancer cells. In this test, the highest cell survival after control group was in turmeric extract with concentration of 25 μ M, which showed a cell survival of $63.12 \pm 1.72\%$. However, this parameter in curcumin with a concentration of 50 μ M reached its lowest level of 27.88 ± 2.63 . This indicates the dose dependence of this compound in preventing cell survival. In the TAC study, the studied groups except the turmeric extract group had a significant difference compared to the control group. This shows that, except for the group, all groups were exposed to curcumin and turmeric extract and antioxidants were produced. In contrast, MTT test has the highest percentage of antioxidant production in the concentration of 50 μ M curcumin, which is 2.25 ± 0.12 mmol/L, while the lowest value of this parameter is 2.09 ± 0.08 mmol/L, which is at 10 μ M was found in turmeric extract, which is still dose dependent on these compounds. The result of this study is the effect of these two substances on cancer cells and the growth of these cells. The effect of this substance on the cells is dose dependent and more effective in higher doses. On the other hand, the effect of pure curcumin is greater than that of turmeric alcoholic extract.

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