

**Toxicity Effect of Furan on the Morphology of Human Erythrocytes**

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**Aim of the study:** Furan is a toxicant and it is classified as carcinogenic to animals and humans. Aim of this study was to examine the potential damage of furan on human erythrocytes with the May-Grünwald-Giemsa method staining method *in vitro* conditions.

**Material and Methods:** Obtained healthy blood was centrifuged at 10,000 rpm, for 10 min, the supernatant was removed and PBS was added at 4 °C. All treatment was repeated three times. Obtained stock of RBC suspension were used for all experiments. RBC suspension (100 µL) treated with furan for different concentrations at room temperature and only saline solution was given to control group. Histological preparations were done and staining carried out with May-Grünwald-Giemsa method. Images of the RBC were obtained by ×100 of optical microscope (Olympus CX51, Japan).

**Results:** The morphological structure of erythrocytes changes from normally disk-shaped to a number of shapes with treatment different chemicals. Changing normal cells were identified and classifications of these changes about cell morphology can be recognized. The crenated cell, or echinocyte, and the cup-shaped cell, or stomatocyte are best characterized as abnormal shapes. Various drugs, by depletion of intracellular ATP and changes in pH can be caused abnormal erythrocytes shape. In this study, changes in membrane morphology from human erythrocytes can be observed *in vitro* under different concentrations of furan. Application of high doses of furan induced changes in erythrocytes morphology for 24 h. A very slight changing of erythrocytes cell's morphology was observed at 1 µg/mL for 6 and 12.

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**Keywords:** Furan, erythrocytes, morphology, echinocytes.