Lung cancer, although rare in the early twentieth century, today it's a major health problem that is rising in number of incidence. Non-small cell lung cancer (NSCLC) is a particularly aggressive type of cancer. Pazopanib (GW786034) is a multitargeted tyrosine kinase inhibitor with activity against VEGFR and other receptors. It was recently approved by the FDA for the treatment of advanced renal cell carcinoma (RCC). In this experiment, cytotoxic, anti-proliferative and apoptotic effects of different concentrations (2.5, 25, 50, 100 and 200 µM) of Pazopanib had been investigated on A549 human lung cancer cells. MTT (3-(4,5-Dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide) assay was performed on mitochondrial activity level to observe cytotoxic effects on cancer cells. Especially, real-time cell analysis (xCELLigence) system was used to analyze anti-proliferative effects according to change of cell index values and also, apoptotic effects of Pazopanib on human lung cancer cell was evaluated by increased annexin V binding capacity with Flow Cytometry. Depending on the, necrotic and apoptotic effects of pazopanib were increased on A549 cells according to concentration and time depending. Cell index values beginning from 50 µM were observed as critical values in Xcelligence system, and IC50 concentration was analyzed as 50±5 µM on 24h. In this study, It was observed that pazopanib has anti-cancerogenic effects on A549 cells, and it may have a new potential in cancer chemotherapy.