Members of the genus Digitalis are medicinally and economically important as they contain cardenolides (cardiac glycosides), which can increase the force of systolic contractions and regulate heart rhythms. In addition to the cardiotonic effects, they are effective anticancer agents, particularly targeting prostate and breast cancer cells. The aims of the study were to evaluate callus induction and phenolic and cardenolide compound production of Digitalis sp. (foxglove) leaves- derived callus extracts formed in MS medium supplemented with 0, 100, 150 and 200 mM NaCl. Calli were subcultured on fresh media every month for two times to growth and maintain of callus stock. Forty-five days after inoculation we assessed the percentage of callus induction, color, fresh weight, cardiac glycosides, phenolic acid and flavonoids contents by HPLC and GC method. NaCl was decreased the callus induction in both application compared with the control. The highest percentages of callus induction (100%) were obtained from leaf explants in control group, followed 100 mM NaCl and 150 mM NaCl. There was no callus induction in explants cultured in 200 mM NaCl. The colour of the callus changed from green (control group) to brownish in high concentration of NaCl. We obtained relationship between stress treatment (various concentrations of NaCl) and content of cardiac glycosides (digoxigenin, gitoxigenin, lanatoside C, digoxin and digitoxin), phenolic acid and flavonoids contents in callus cultures of foxglove. 

Key words: Digitalis, Foxglove, Callus, NaCl, Cardenolides, Phenolics