

P61

Synergistic Cytotoxic Effects of Combination of Genistein and Daidzein on Human Colorectal Cancer Cell

Seong-Min Son, Hyo-Rim Kim, Min-Jeong Kim, Tae-Kyun Kim,
Eul-Won Seo and Jong-Sik Kim*

Department of Biological Sciences, Andong National University, Andong, Gyeongbuk, Korea.

To investigate whether isoflavone genistein and daidzein could affect cancer cell viabilities, human colorectal HCT116 cells were incubated with genistein or daidzein in a dose-dependent manner. Genistein decreased cancer cell viabilities in a dose-dependent manner, whereas daidzein did not show dramatic cytotoxic effects. However, combination of genistein and daidzein showed synergistic cytotoxic effects detected by MTS assay. And also, we performed oligo DNA microarray analysis to reveal the molecular mechanism of cell death in response to genistein treatment. We found that 71 genes were up-regulated more than 2-folds, whereas 64 genes were down-regulated more than 2-folds by 24 hr treatment of 50 μ M genistein. Among the up-regulated genes, we selected four genes (*NAG-1*, *DKK1*, *ATF3* and *GADD45A*) and performed RT-PCR to confirm microarray data. The results of RT-PCR were highly correlated with those of microarray experiment. Overall, these results may provide keys to explain the anti-cancer activity of genistein and daidzein in human colorectal cancer.

Key words: Genistein, Daidzein, Synergistic cytotoxicity, Oligo DNA microarray

P62

The Effect of Muddy Water on Tissues and Blood Components of Fishes in Imha Reservoir

Myung Ja Shin, Jeong Sook Kim, Min Jeong Park, Jae Hwan Lim,
Jong Eun Lee and Eul Won Seo*

Department of Biological Science, Andong National University, Andong 760-749, Korea

Present study aims to investigate the effect of muddy water on gill and kidney tissues and blood components of *Erythroculter erythropterus*, *Hemibarbus labeo*, *Silurus asotus*, *Siniperca scherzeri*, *Zacco platypus* in Imha reservoir. The gills of the fish living in muddy water showed irregularities in its secondary lamellae and clubbing of the secondary lamellae, and separation and edema of the epithelium cells were observed. Also, The space between gill lamellae was irregular, and muddy debris around the secondary lamellae were observed. The size of glomerula in kidney was smaller than that of control. The number of red blood and white blood cells were more in *S. asotus*. TP and ALB concentration was ranged at the level of 1.92~5.33 g/dl and 0.98~1.6 g/dl. Also, *E. erythropterus* showed the highest ration of A/G 3.73 g/dl. The concentrations of TG and CHOL components sum of lipids of these two components was the highest with 746.25 mg/dl in *E. erythropterus*. The mineral concentrations was the highest with 105~122 mmol/l and 60.75~90 mmol/l in Na and Cl. The highest AST and ALT activity was found in *H. labeo*. Based on the above results, it is considered that muddy water possibly involves in the decrease of respiratory and excretory rates, giving rise to secondary lesion of tissues.

Key words: Tissue, blood component, fish, muddy water