

## **Thesis Summary**

### **Introduction**

Apigenin, is a natural compound that found in high amounts in vegetables and fruits. This natural flavone has shown strong cardioprotective effects in animal and clinical studies. Due to cardioprotective effects of apigenin in previous studies, we hypothesized that apigenin protects isolated cardiomyocytes from aluminum phosphide (AIP)-induced toxicity as the most common disturbances after exposure with this agent.

### **Materials and Methods**

Using by of biochemical and flowcytometry techniques; cell viability, reactive oxygen species (ROS) generation, mitochondria membrane potential (MMP), lysosomal membrane integrity, malondialdehyde (MDA) and oxidized/reduced glutathione (GSH/GSSG) content were measured in rat heart isolated cardiomyocytes.

### **Results**

We showed that apigenin could protect the cardiomyocytes from damage induced by AIP. ROS formation, lysosomal damage, mitochondrial damage, and lipid peroxidation induced by AIP were also decreased by apigenin. Therefore, the research suggested that apigenin could be a candidate for AIP poisoning.

### **Discussion**

Due to the predominant role of cardiotoxicity in the patients of AIP poisoning, in the current study we isolated rat heart cardiomyocytes to evaluate to cytoprotective effect of apigenin against AIP-induced cytotoxicity. It is widely believed that natural antioxidant agents might pave a way for the therapy of cardiovascular disorders. Apigenin a major active constituent in many medicinal plants, is commonly used for its antioxidative and anti-inflammatory effects.

### **Keywords**

Aluminium Phosphide; Apigenin; Cardiotoxicity; Cardiomyocytes; ROS; Mitochondrial and lysosomal damage