

LYCOPENE AND ITS ANTIOXIDANT PROPERTIES IN THE PREVENTION OF CHRONIC ILLNESSES AND CANCER

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Abstract

Free oxygen radicals play important roles in the pathogenesis of some chronic diseases such as: diabetes, cardiovascular, neurological and cancer. The role of oxidative stress induced by reactive oxygen species (ROS) and the oxidative damage of important biomolecules are the main focuses of research related to chronic diseases. Antioxidants are known as potential scavengers of free radicals. If the balance between free radicals and antioxidants is destroyed, then the imbalance can lead to damage to DNA, lipids and proteins, which causes chronic disease of the body. The most powerful antioxidant in the carotenoid group is lycopene. According to the given literary values, the daily dose of lycopene in the prevention of chronic diseases and cancer is 60 mg. The aim of our research was to determine the content of lycopene in certain varieties of fresh tomatoes, the benefits of its antioxidant properties and the role in the prevention of chronic diseases and cancer.

In our country in terms of cultivation and consumption of tomatoes and tomato products, we can say that the tomato is the most important natural source of lycopene. The tested material that we used and to which we determined the content of lycopene were the following varieties of fresh tomatoes: Arizona (9.37 mg/100 g), Aleksandar (10.44 mg/100 g), Rio Grande (9.80 mg/100 g), Florida (10.73 mg/100 g), Peak rape (9.67 mg/100 g), Carioca (9.75 mg/100 g), Heinz 7151 (11.02 mg/100 g), and Vf 10 (11.51 mg/100 g). The lycopene was isolated by column chromatography of the extract obtained by refluxing of tomato paste.

From the results obtained it can be concluded that each variety of tomatoes has different lycopene content. With the highest content of lycopene of 11.51 mg/100 g the fruits of tomatoes of the variety Vf 10 were distinguished, and the smallest content of 9.37 mg/100 g was found the fruit of tomatoes from the Arizona variety.

Also this scientific study will allow nutritionists to use these values for different varieties of tomatoes in order to recommend a daily dose of lycopene.

Key words: Lycopene, Antioxidant, Tomato, Health effects.