

Synthesis of derivatives of chalcones and study of their effect on the oxidative proteins modification

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Keywords: chalcones, 1,2,3-triazole, click-chemistry, oxidative proteins modification, HEK293A cells.

Abstract

Oxidative proteins modification represents an early and the most reliable marker of the oxidative stress. In view of this fact the study of this parameter is being used more frequently by researchers now. HEK293A cells (Human Embryonic Kidney) – cells line, obtained from human embryonic kidney cells. This cells line became popular due to simple cultivation and is often a test object in biotechnology, pharmacology and gene therapy. One of the perspective synthetic technique to obtain analogues of many natural products is click-reaction leading to 1,2,3-triazoles fragment in the structure of the reaction product. Chalcones are quite well studied class of natural and synthetic compounds which possess a wide range of biological activity, particularly antioxidant. At present time a lot of report appears on the synthesis of various derivatives of the natural chalcones, including those with various heterocycles in their structure. Nevertheless, a range of issues concerning the structure-activity relationship of these derivatives are still not clear. To study some of this points we synthesized chalcone derivatives both with and without 1,2,3-triazole fragment. We studied the effect of 1,2,3-triazole pharmacophore at 3'-position in the A-ring of 2,4,5-trimethoxychalcone molecule on the biological activity towards the oxidative proteins modification in the HEK293A cells. It is found that an increase in oxidative proteins modification is associated with the presence of 1,2,3-triazole fragment in the A-ring of the chalcone molecule. It suggests the appearance of prooxidant activity. However further studies are needed to understand the mechanism of this effect.

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