

عنوان مقاله:

The Development of a Novel Anti-Obesity Compound with Inhibiting Properties on the Lipid Accumulation in 3T3-L1 Adipocytes

محل انتشار:

هشتمین همایش بین المللی طلای سبز (سال: 1398)

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خلاصه مقاله:

Obesity as a developing global challenge can be characterized by increase in adipocyte number and size arising from adipogenesis. Control of adipogenesis as a potential strategy can prevent and manage obesity. So far, the effectiveness of herbal medicine and active ingredients therapies for obesity and metabolic syndrome treatment has been investigated. The combination of some effective herbs and their active ingredients can increase their therapeutic effects. In this study, the development and effectiveness of a novel and impressive drug composition for the treatment of obesity including berberine, catechin, and capsaicin were studied. In the present research, the development and effectiveness of a novel and impressive drug composition for the treatment of obesity including berberine, catechin, and capsaicin in 3T3-L1 adipocytes were evaluated. The cell viability of active ingredients were assessed by MTT assay. Adipocytes were treated with various concentrations of berberine (3, 6.25 μ M), catechin (6.25, 12.5 μ M) and capsaicin (6.25, 12.5 μ M) alone and the combination of them. All active ingredients didn't affect cell viability by MTT assay at various concentrations. The findings of the present study have revealed that the dual and triple combinations of berberine, catechin, and capsaicin have excellent potential as effective anti-obesity agents without any toxicity. The inhibitory effect of berberine, catechin, and capsaicin in the differentiation of 3T3-L1 preadipocytes varied in a dependent response. These results indicate that catechin in both doses may have a stronger effect than other active ingredients on the intracellular lipid accumulation. Also, the triple combination of catechin, capsaicin, and berberine showed better responses than their dual combination. The present study is the first report to simultaneously investigate these three active ingredients in a single, dual, and triple formats. The berberine, catechin and capsaicin co-treatment inhibits the adipogenesis during the differentiation process. This compound can be a prospective therapy for obesity and relevant diseases such as dyslipidemia.

