

## عنوان مقاله:

Design and synthesis of new esters of terpenoid alcohols as ۱۵-lipoxygenase inhibitors

## محل انتشار:

مجله علوم پایه پزشکی ایران، دوره 21، شماره 7 (سال: 1397)

تعداد صفحات اصل مقاله: 7

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## خلاصه مقاله:

Objective(s): ۱۵-Lipoxygenases are one of the iron-containing proteins capable of performing peroxidation of unsaturated fatty acids in animals and plants. The critical role of enzymes in the formation of inflammations, sensitivities, and some cancers has been demonstrated in mammals. The importance of enzymes has led to the development of mechanistic studies, product analysis, and synthesis of inhibitors. Materials and Methods: The inhibitory activity of all synthetic compounds against SLO (soybean ۱۵-lipoxygenase: L<sub>1</sub>; EC ۱.۱۳.۱۱.۱۲) was determined using the peroxide formation method. In this method, the basis of evaluation of lipoxygenase activity is measuring the concentration of fatty acid peroxide. All measurements were compared with ۴-methyl-۲-(۴-methylpiperazinyl)pyrimido[۴,۵-b]benzothiazine (۴-MMPB) as one of the known lipoxygenase inhibitors. The radical scavenging ability of all synthetic compounds using stable free radicals (DPPH: ۲,۲-diphenyl-۱-picrylhydrazyl) was measured for further investigation. Results: In this study, a series of esters from phenolic acids with terpenoid alcohols was synthesized and their inhibitory potency against soybean ۱۵-lipoxygenase and their free radical scavenging properties were determined. Among the synthetic compounds, adamantyl protocatetuate ۲j and bornyl protocatetuate ۲o showed the most potent inhibitory activity with IC<sub>۵۰</sub> values of ۰.۹۵ and ۰.۷۸ μm, respectively. Conclusion: By changing the alcohol and acyl portions of stylosin, it was found that electronic properties play main role in lipoxygenase inhibition potency in contrast with steric features. Insertion of more reductive phenolic moiety such as catechuate and gallate lead to more lipoxygenase inhibition potency of the esters as observed in their radical scavenging activity.

## کلمات کلیدی:

Inhibitors, Phenolic acid, Radical scavenging, Terpenoids, ۱۵-lipoxygenase

## لینک ثابت مقاله در پایگاه سیویلیکا:

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