

ABSTRACT**Optimization of The Separation of The Reaction Mixture Between
Ortho-Coumaric Acid and Benzoyl chloride By Column Chromatography
Method**

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Cardiovascular disease is the leading cause of death in the world and the main focus is a high prevalence of thrombotic abnormalities. It due to uncontrolled platelets aggregation that causes of a pathological thrombus formed in veins, arteries and heart's chambers. Then, it can lead to complication and death, therefore physicians gave anti-thrombotic drugs such as Aspirin, Clopidogrel, Prasugrel, Dipyridamole, Iib/IIIa antagonist and Thienopyridine.

The same as any other modern medicines, anti-thrombotic had adverse effects such as upper gastrointestinal bleeding and hemostatic disorders, so the development of new anti-thrombotic drugs which has same or better therapeutic effect and less adverse effects. Based on in silico test, *o*-coumaric acid has antiplatelet and anti-thrombotic activity but its ability is still lower that aspirin, so structural modification is carried out.

The objective of this research was to make a good separation of the reaction mixture between *o*-coumaric acid and benzoyl chloride using column chromatography to obtain a pure target compound (2-benzoyloxycinnamic acid). The first step of research was selection of best eluent using column chromatography. The second step was column preparation and separation by column chromatography. The next step was structure indentification of target compound by using UV-Vis spectroscopy, infrared spectrophotometry and ¹H-NMR spectrometry.

This study showed that the best eluent is chloroform and methanol with comparison 8:1. Beside of that, UV, IR and ¹H-NMR spectra showed that target compound is different from starting compound (*o*-coumaric acid and benzoate acid). Based on this study results, it can be concluded that the mixture was separataed well by using column chromatography so that a pure compound was obtained.

Keywords: *o*-coumaric Acid, Benzoyl chloride, Anti-thrombotic, Antiplatelets, Column Chromatography