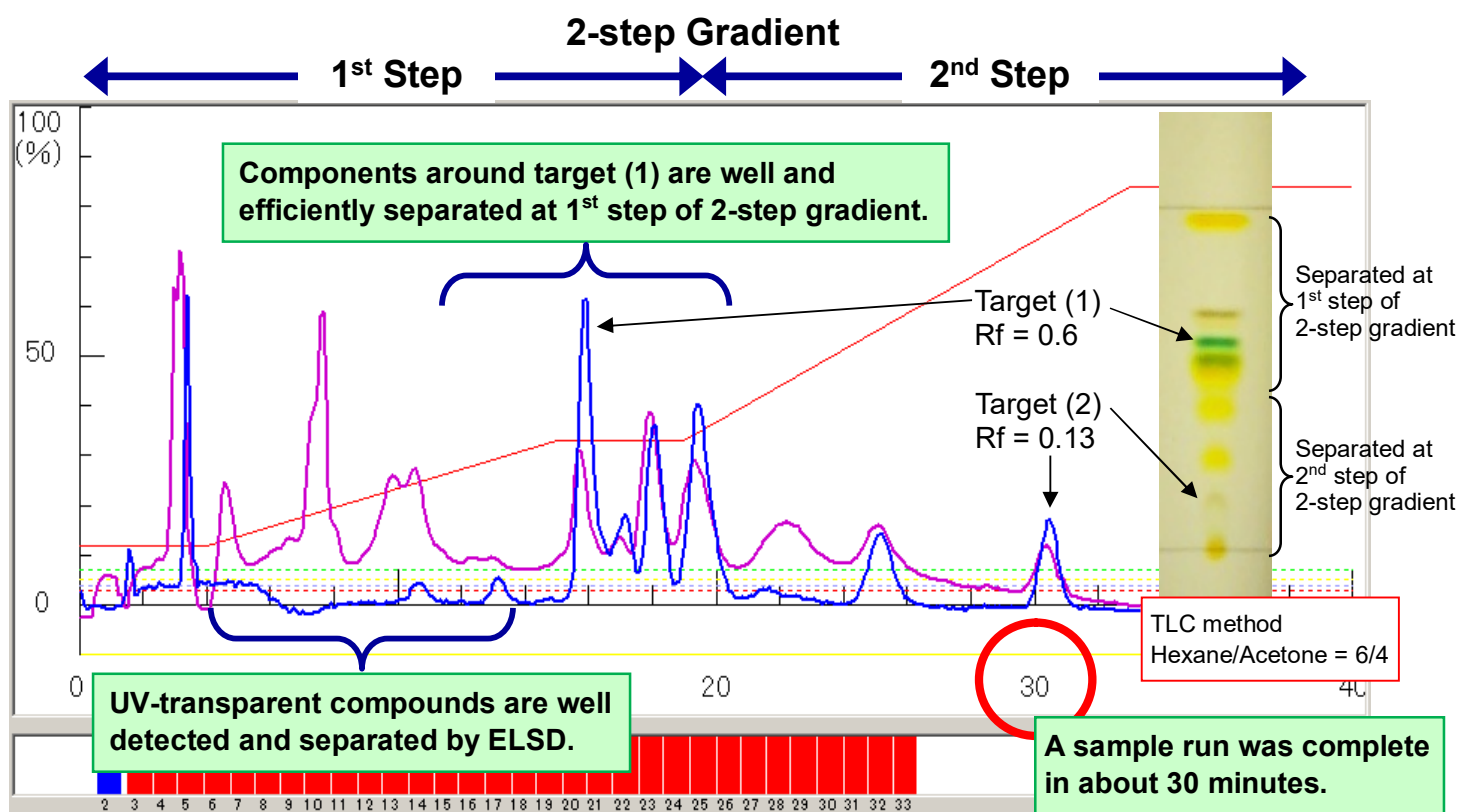


## Efficient Separation of Natural Plant Extracts by Yamazen's 2-step Gradient Separation of Pigments of Spinach Extract

It is essential to separate and isolate the natural plant extracts in the early stage of the natural products chemistry. However, a natural plant extract consists of many different components, and usually, it is very difficult to separate the target components from others. Flash chromatography is a good method to separate natural plant extracts, however, it is important to use a good method. Yamazen has advanced technology to make a perfect method transfer from TLC to automated flash chromatography, which assures good separations of complex compounds like natural plant extracts. As an example we run pigments extracted from spinach this time. Spinach contains such pigments as carotene, xanthine as well as chlorophyll which absorbs light energy in photosynthesis.



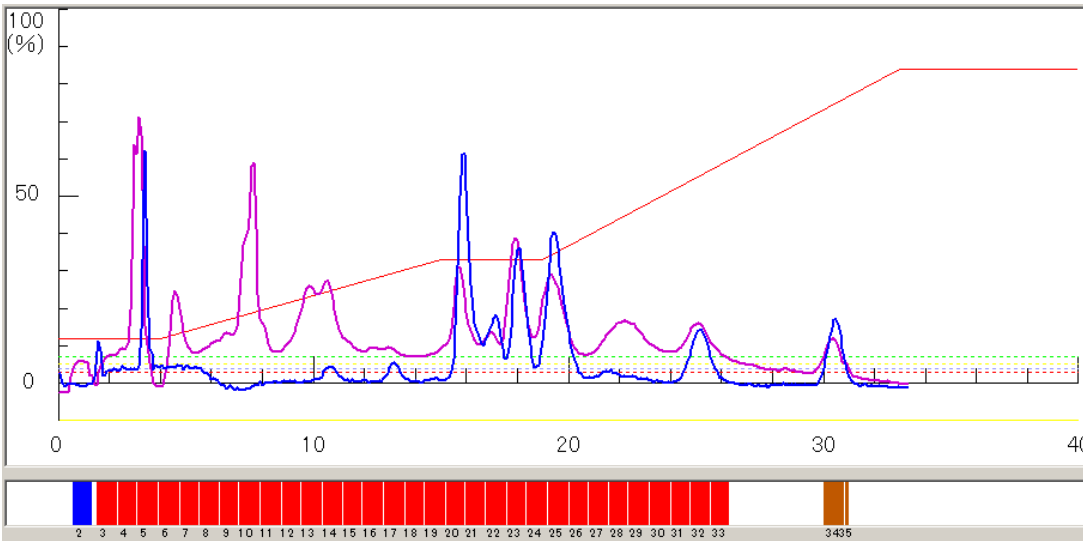
Sample: Spinach extract 3ml  
 Column: L-size (40g) Silica Gel Universal Column Premium  
 Method: Target components: Rf0.6 and Rf0.13  
 Automatic method setting – 2-step Gradient

Detection: UV, 430nm ———  
 ELSD ———

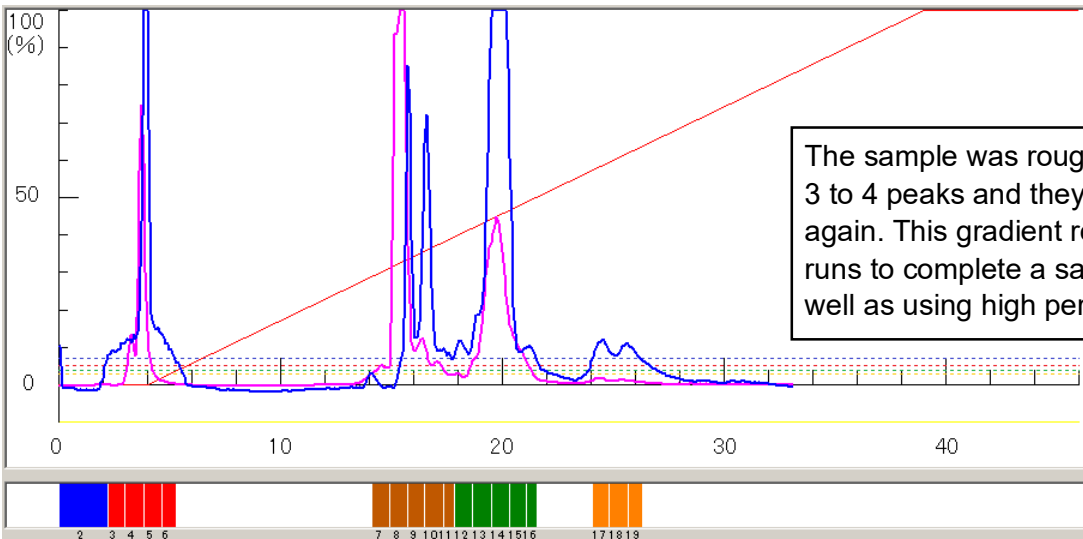
Even those natural products that consist of many components ranging from low polar components to highly polar components can be well and efficiently separated on Yamazen's 2-step gradient. Even UV-transparent compounds can be detected and separated by parallel detection with UV detector and ELSD. Usually, it is pretty difficult to choose a correct UV wavelength when running natural products, ELSD can detect and separate them all except extremely low molecular weight compounds.

# Comparison of Different Gradients

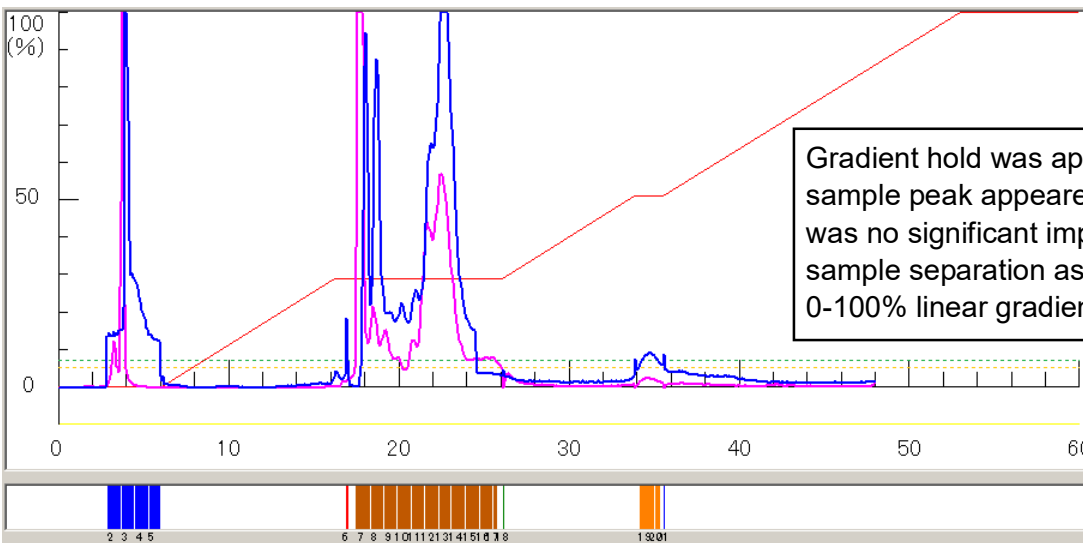
## Yamazen's 2-step Gradient



## 0-100% Linear Gradient



## 0-100 Linear Gradient with Gradient Hold



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