

I.N.G.W.E.R. – Instrumental Analysis of Nutritional Ginger Wellness Extracts

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INTRODUCTION

The pungent ginger root (*Zingiber officinale Roscoe*) is considered healthy. This is largely due to its gingerol content. The star ingredient in fresh, raw ginger is [6]-gingerol. It is the most abundant and best-studied compound in the raw root, responsible for much of its famous anti-nausea and anti-inflammatory effects. But ginger also contains smaller amounts of [8]- and [10]-gingerol.

However, when ginger is dried or heated, something fascinating happens. The gingerol undergoes a chemical transformation and turns into a new family of compounds called shogaols. Shogaol has high antioxidant capacity and can combat oxidative stress in the body. It also has anti-inflammatory properties and can help reduce pain and inflammation.

MATERIALS & METHOD

Different types of ginger shots were measured. They were first centrifuged and the supernatant was removed. The remaining solid was extracted with a mixture of MeOH:H₂O 50:50 (v/v) and centrifuged again. The obtained extract was filtered through a 0.22 µm nylon filter and then injected into the HPLC system. Analysis was performed under reversed phase conditions with a KNAUER Eurospher II C18H column in a dimension 150 x 3 mm ID and 3 µm particle size at a flow rate of 0.8 ml/min.

CONCLUSION

[6]-gingerol could be identified/measured in all samples. Compared to the freshly extracted root, the classic ginger shot and the pomegranate ginger shot contained the highest amount of [6]-gingerol. The lowest amount of gingerol was found in the fruit shot. Due to extraction with hot water instead of methanol:water, only a small amount of gingerol was found in the tea. Additionally, [8]-gingerol, [10]-gingerol and [6]-shogaol were present in the classic, pomegranate, pineapple and vitamin acai samples.

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RESULTS

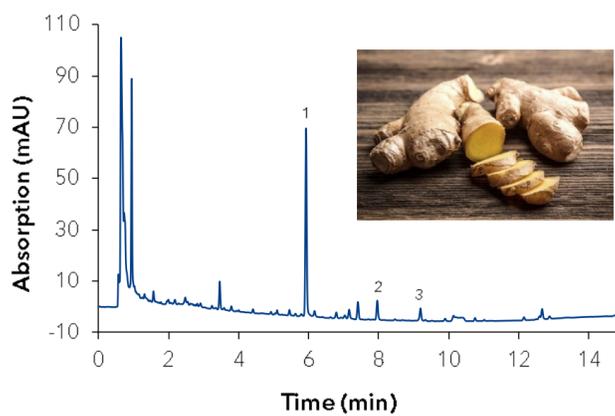


Fig. 1 Chromatogram of fresh ginger root, 5 g sample was extracted with MeOH:H₂O; 1 - [6]-gingerol, 2 - [8]-gingerol, 3 - [10]-gingerol

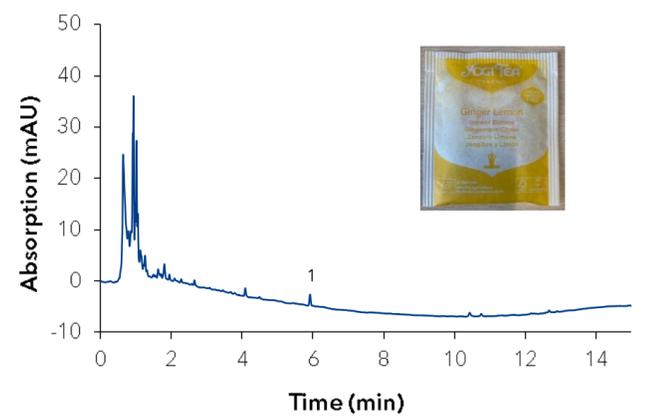


Fig. 5 Chromatogram of YogiTea ginger lemon, 1 tea bag (1.8 g) was extracted with 200 ml hot water; 1 - [6]-gingerol

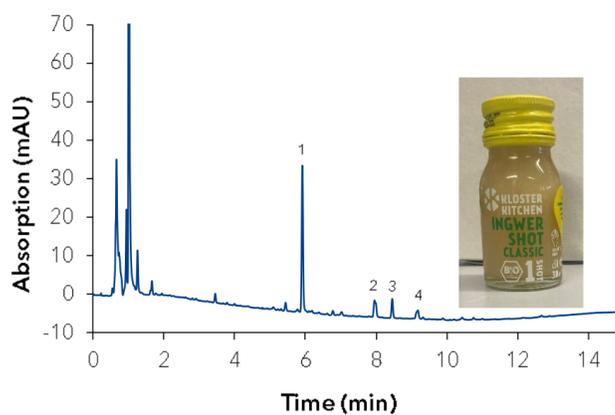


Fig. 2 Chromatogram of classic ginger shot, 1 - [6]-gingerol, 2 - [8]-gingerol, 3 - [6]-shogaol, 4 - [10]-gingerol

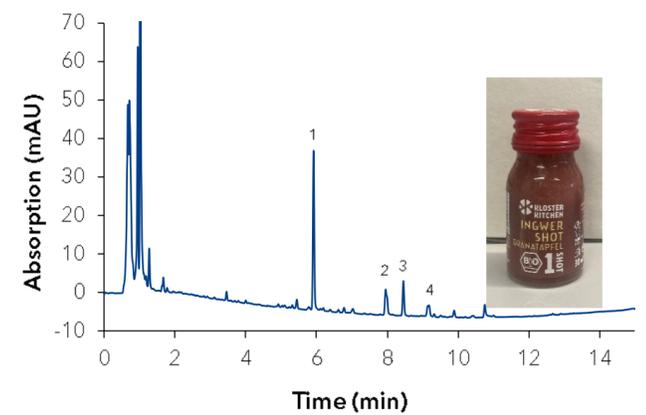


Fig. 6 Chromatogram of pomegranate ginger shot, 1 - [6]-gingerol, 2 - [8]-gingerol, 3 - [6]-shogaol, 4 - [10]-gingerol

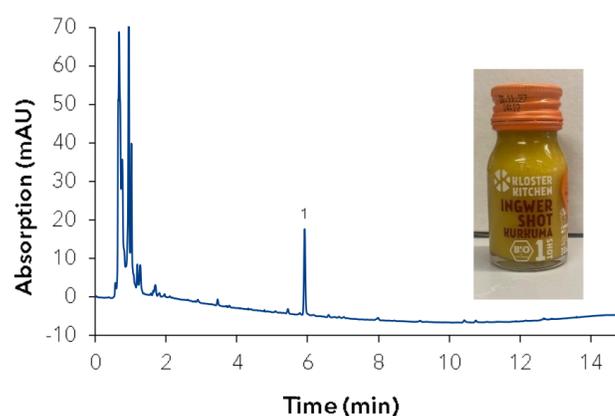


Fig. 3 Chromatogram of Kurkuma ginger shot, 1 - [6]-gingerol

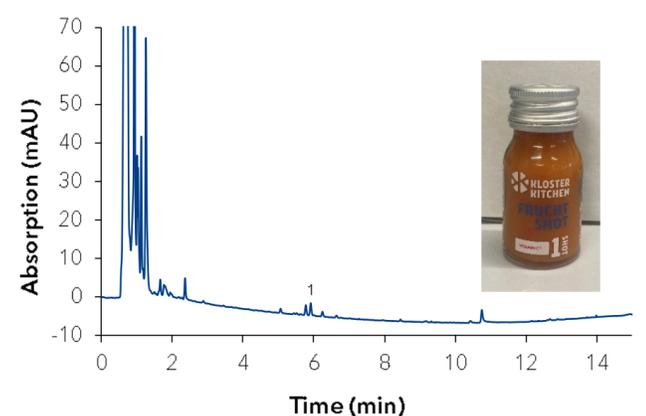


Fig. 7 Chromatogram of fruit shot, 1 - [6]-gingerol

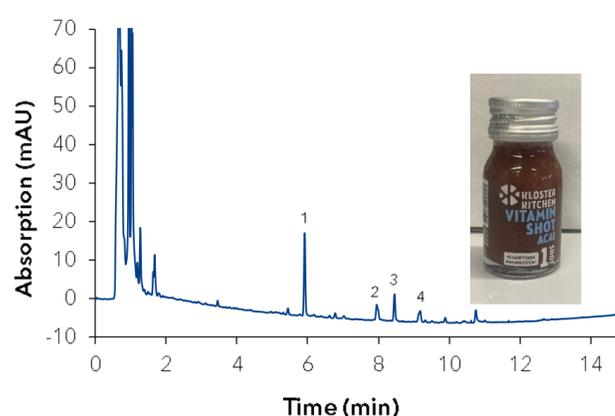


Fig. 4 Chromatogram of Vitamin Acai shot, 1 - [6]-gingerol, 2 - [8]-gingerol, 3 - [6]-shogaol, 4 - [10]-gingerol

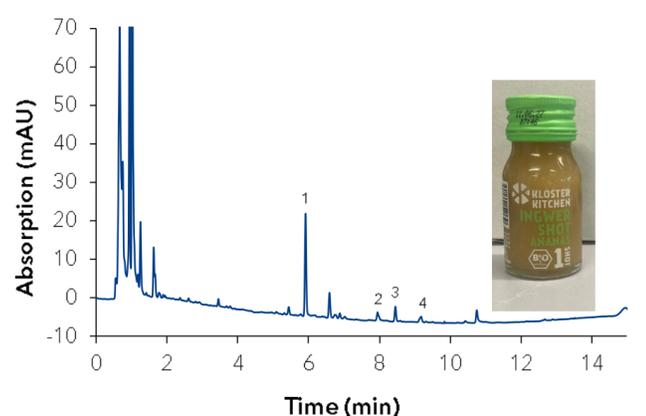


Fig. 8 Chromatogram of pineapple ginger shot, 1 - [6]-gingerol, 2 - [8]-gingerol, 3 - [6]-shogaol, 4 - [10]-gingerol