

عنوان مقاله:

Comparative HPLC Analysis of 6-Gingerol and 6-Shogaol in Soil-Based and Soilless-Grown Ginger

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خلاصه مقاله:

Ginger or *Zingiber officinale* Roscoe is a well-known herbal medicine and is widely used in Asian cuisine. Its major bioactive compounds, 6-gingerol and its dehydrated form, 6-shogaol, were reported to have potential medicinal properties. However, previous phytochemical studies on the compounds are limited to conventionally grown or soil-based ginger, neglecting soilless ginger grown through hydroponic techniques. This technique has been widely adopted as an alternative to circumvent soil-related complications. Therefore, this study aimed to compare both marker compounds in soil-based (SB) and soilless-grown hydroponic (HP) ginger extracted in different ethanol concentrations (95% and 100%) using high-performance liquid chromatography. The study initially found that 6-gingerol concentration in 95% SB ginger ethanolic extract (1.012%) was significantly higher ($p < 0.05$) than in 95% HP dried ginger (HP1) ethanolic extract (0.314%). The 6-gingerol content for both gingers were also significantly higher ($p < 0.05$) in 95% ethanolic extracts compared to 100% ethanolic extracts. The analysis was also performed with fresh-dried HP ginger (HP2), and it was found that the HP2 ginger (0.75%) has a significantly higher 6-gingerol concentration ($p < 0.05$) compared to HP1 ginger (0.314%), confirming that the previous results were implicated by storage conditions. The concentration of 6-gingerol in 95% SB ginger extract (1.012%) differ significantly compared to those in HP2 extract (0.75%) while both gingers have equivalent amount of low 6-shogaol concentrations (0.004% and 0.005% respectively). It is worth to note that HP ginger grown in soilless condition could still produce high amount of 6-gingerol. This finding encourages the usage of HP ginger in pharmacological studies considering the other economic and environmental benefits it offers.

کلمات کلیدی:

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