

Evaluation of Volatile Compounds in the Domestic and Imported Hops (*Humulus lupulus* L.) by SPME-GC/MS¹

Yun-Chung Li² Jui-Chia Lee³ Hsin-Chun Chen⁴ Chia-Hsing Huang³

Abstract

Humulus lupulus L. is the key ingredient of beer brewing owing to its bittering flavor and floral aroma. It belongs to genus *Humulus* of the Cannabaceae family, growing in temperate climate. In 2021, our station started to promote domestic hops cultivation. In order to comprehend the influence of volatile compounds in different climate, this study aim to analysis the different of volatile compounds in domestic and imported hops by SPME-GC/MS. The result shows that most of volatile compounds are similar, but domestic have some unique compounds compare to foreign hops, include β -Elemene (0.44%), epi-Bicyclosquiphellandrene (0.1%), Methyl heptanoate (2.62%), Heptyl propanoate (0.05%), 2-Hexenal (0.14%), 1-Octen-3-ol (0.18%) and Nonanal (0.34%). According to principle component analysis (PCA), domestic hops are similar to Saaz and presumed to be of aroma cultivars. Domestic hops has herbal odor cause its high content of α -Selinene (5.39%) and β -Selinene (5.23%). For the first time, the present study established the volatile compounds pattern of the hops bred in subtropical climate, provide a quality reference of cultivation improvement and variety breeding in the further.

Keywords: hop, SPME, GC/MS

1. Research article No.310 of Hualien District Agricultural Research and Extension Station.

2. Contract-based assistant, Division of Crop Improvement, Hualien DARES.

3. Research assistant, Division of Crop Improvement, Hualien DARES.

4. Professor, Department of Cosmetics and Cosmetics, China Medical University, Taiwan.