

The Influence of Different Processing Methods on Gardenia Volatile Components

Zhang Cun^{1*}, Liu Hui¹, Yao Lan¹, Chen Jian-hong^{1,2}, Gu Xue-zhu¹, Ma Yin-lian¹, Chen Ying¹ and Li Pu-ling^{1,2}

¹Institute of Chinese Materia Medica, China Academy of Chinese Medical Sciences, Beijing 100700, China;

²Henan University of Traditional Chinese Medicine, Zhengzhou 450008, China

Gardenia jasminoides Ellis (GJE), derived from the dried ripe fruit of *Gardenia jasminoides* Ellis according to Chinese Pharmacopoeia [1], is used as traditional Chinese medicine extensively due to outstanding clinical efficacy. Modern research has shown that gardenia has physiological activities in terms of anti-inflammatory [2], antioxidant [3], and nitrite-scavenging [4]. It also can inhibit leukocyte adherence to vascular endothelial cells induced by ages [5], resist platelet aggregation and promote bile secretion cells in the pancreas [6]. Pharmacological action is the external manifestation of chemical composition. Therefore, the research of chemical components in Gardenia becomes necessary. Gardenia ingredients mainly include iridoid, diterpene, organic acids esters, which had been researched widely. Iridoids components are seen as the index components to evaluate the effect of gardenia, but volatile oil composition is studied infrequently due to the relatively instability. This study will focus on the research of volatile oil components of Gardenia by GC-MS (Figure 1). Different processing methods influence gardenia volatile components due to poor stability of volatile.

Gardenia processing varieties have 4 classes mainly in the clinic. Gardenia produced in Jiangxi Province (China). Fried Gardenia (FG) was made of Gardenia which were placed in stir frying machine about 4 min for processing, with a temperature of 160°C and revolving speed of 25r/min. Similarly, Gardenia was screen out debris and placed in stir frying machine about 7 min/10 minutes for processing, with a temperature of 230°C/280°C, revolving speed of 25 r/min. We got Stir-baked Gardenia and Gardenia fried into carbon respectively (SG and CG). These four processing varieties are with no difference in essence, nothing but different processing time and processing temperature. However, four kinds of Gardenia were extracted volatile oil and identified by GC-MS, finding the content and proportion of volatile components changed. The change of volatile oil in Gardenia and processed products over 3% was displayed in (Figure 2).

Some unstable components (such as o-Xylene, toluene) reduced and disappeared, along with producing new chemical compounds (such as furfural) with the processing degree deepening. The content of stability composition (isophorone) also changed. The influence of temperature and processing time is huge too volatile composition, so in-depth study on the content changes of volatile oil in Gardenia is necessary for Gardenia quality control. Volatile oil compositions has gradually been extracted and perceived for wide antimicrobial activity in plants [7-8]. Gardenia was regarded as medicinal and edible plant, expected to become a natural preservative in food. Iridoid, diterpene and organic acids esters are regarded as standards for quality control and fingerprint in Gardenia. At the same time, the research has certain reference significance to Gardenia pharmacodynamics.

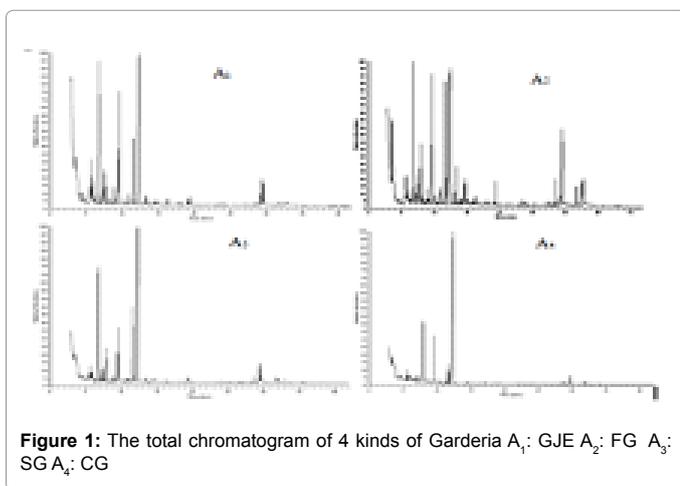


Figure 1: The total chromatogram of 4 kinds of Garderia A₁: GJE A₂: FG A₃: SG A₄: CG

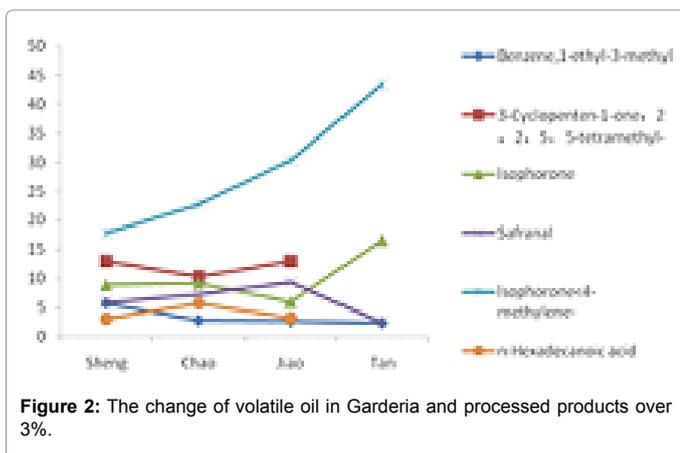


Figure 2: The change of volatile oil in Garderia and processed products over 3%.

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*Corresponding author: Zhang Cun, Institute of Chinese Materia Medica, China Academy of Chinese Medical Sciences, Beijing 100700, China, Tel: 55-17-3221-252; E-mail: liuhui19880827@163.com

Received September 25, 2014; Accepted September 29, 2014; Published October 03, 2014

Citation: Cun Z, Hui L, Lan Y, Jian-hong C, Xue-zhu G, et al. (2014) The Influence of Different Processing Methods on Gardenia Volatile Components. *J Plant Biochem Physiol* 2: e126. doi:10.4172/2329-9029.1000e126

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