

Lonicera japonica ‘Fenglei’

Huijie Zeng

College of Biological Science and Technology, National Engineering Laboratory for Tree Breeding, Beijing Forestry University, 35 East Qinghua Road, Beijing 100083, China; and Hunan Academy of Forestry, 658 South Shaoshan Road, Changsha, Hunan 410004, China

Yun Li¹

College of Biological Science and Technology, National Engineering Laboratory for Tree Breeding, Beijing Forestry University, 35 East Qinghua Road, Beijing 100083, China

Jianjun Chen¹

Hunan Key Laboratory for Breeding of Clonally Propagated Forest Trees, 658 South Shaoshan Road, Changsha, Hunan 410004, China; and University of Florida, IFAS, Mid-Florida Research and Education Center, 2725 S. Binion Road, Apopka, FL 32703

Xiaoming Wang, Zhongquan Qiao, Yongxin Li, Neng Cai, and Sisi Liu

Hunan Key Laboratory for Breeding of Clonally Propagated Forest Trees, 658 South Shaoshan Road, Changsha, Hunan 410004, China

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Lonicera japonica Thunb., commonly referred to as honeysuckle or Jin Yin Hua in Chinese, produces abundant fragrant flowers. Dried flowers and buds of honeysuckles are known as Flos *Lonicerae*, which has been a famous herb of traditional Chinese medicine for more than 1500 years (Li et al., 2015). Flos *Lonicerae* have been used to treat arthritis, diabetes mellitus, fever, and viral infections (Li et al., 2015; Shang et al., 2011). A total of 140 chemical compounds have been isolated from Flos *Lonicerae* ranging from essential oils, organic acids, flavones, saponins, and iridoids (Lee et al., 1998; Li et al., 2015; Palacios et al., 2002; Shang et al., 2011). Because different species and cultivars or even the same cultivar produced in different geographical locations vary in concentrations of these chemical compounds, the Chinese Pharmacopoeia (Committee for the Pharmacopoeia of People’s Republic of China, 2015) recommended using the content of 5-*O*-caffeoyl-quinic acid or chlorogenic acid (CGA) and luteolin (3’,4’,5,7-tetrahydroxyflavone) as two indicators for evaluating the quality of Flos *Lonicerae* (Shang et al., 2011).

CGA has multiple pharmacological actions including antioxidation, antibacteria, antiviral, anti-inflammatory, and antiliver

fibrosis. It can suppress N-nitrosating reactions and inhibit hepatic glucose 6-phosphatase, which is a significant factor in the abnormal diabetic state (Yang et al., 2004). CGA can strongly suppress adeno-associated 3 and 7 viruses, coxsackie B3 and B5 virus, and respiratory syncytial virus (Hu et al., 2001). In accordance with the Chinese Pharmacopoeia, Flos *Lonicerae* used in traditional Chinese medicine must have a CGA content greater than 1.5%. Luteolin shows antiviral

actions and has been used as an influenza virus neuraminidase inhibitor (Liu et al., 2008). It also inhibits growth and migration of human lung cancer cells (Zhao et al., 2011). Flos *Lonicerae* used in traditional Chinese medicine must have luteolin content higher than 0.05% (Committee for the Pharmacopoeia of People’s Republic of China, 2015).

Five species have been listed by the Pharmacopoeia of China for producing Flos *Lonicerae*: *L. confusa* DC., *L. fulvotomentosa* Hsu et S.C. Cheng, *L. japonica*, *L. hypoglauca* Miq., and *L. macranthoides* Hands-Mazz. A major breeding effort in China is to increase both CGA and luteolin contents in *Lonicera* flowers. The current focus has been primarily on *L. japonica* and *L. macranthoides*. Wang et al. (2004, 2009a) isolated three naturally occurring mutants: ‘Jincuilai’, ‘Yincuilai’, and ‘Baiyun’ from *L. macranthoides* in Hunan province, China, and later ‘Longhua’ (Chen et al., 2013) and ‘Huayao-Wanshou’ (Wang et al., 2013) were selected from *L. macranthoides*. This article reports a new cultivar Fenglei, a selection from *L. japonica*.

Origin

‘Fenglei’ (Fig. 1A and B) is a naturally occurring mutant selected from *L. japonica* ‘Juhuyaihao’ (Fig. 1C and D). It was discovered in 2010 during a survey of *Lonicera* germplasm in Fei County, Linyi city, Shandong Province, China. A key characteristic of this mutant is that the flowers never open. This isolate was propagated by stem cuttings from 2010 to 2012 for establishing a large number of propagules. The resultant plants were evaluated from 2012 to 2016 in



Fig. 1. *Lonicera japonica* production in a *Lonicera* production farm in Linyi city, Shandong Province, China. (A) A field view of ‘Fenglei’ production and (B) a close look of ‘Fenglei’ with abundant flowers that are not open. (C) A field view of ‘Juhuyaihao’ production in 2015, and (D) a close look of ‘Juhuyaihao’ with open flowers. Photos were taken on 20 May 2015.

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¹Corresponding authors. E-mail: yunli@bjfu.edu.cn or jjchen@ufl.edu.