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Lonicera japonica 'Fenglei'

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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, antivirus, 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 antivirus 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. confuse* 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: 'Jincuilei', 'Yincuilei', 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* 'Juhuayihao' (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 'Juhuayihao' production in 2015, and (**D**) a close look of 'Juhuayihao' with open flowers. Photos were taken on 20 May 2015.

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