

Unrecorded and introduced taxon in Korea: *Cymbalaria muralis* P. Gaetrn. (Scrophulariaceae)

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미기록 귀화식물 : 덩굴해란초 (현삼과)

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ABSTRACT: A naturalized species from Korean flora, *Cymbalaria muralis* P. Gaetrn. (Scrophulariaceae), is firstly recorded from a well-drained bare field at Bulgwang-dong, Eunpyong-gu, Seoul city. The genus *Cymbalaria* Hill has not recorded in Korea and *C. muralis* is easily distinguished from the other species of Scrophulariaceae by palmately-lobed leaves, vine-like stems and cylindrical spur at the base in its flower. The new Korean name is 'Deong-gul-he-ran-cho'. Descriptions, illustrations and photographs of this species are given.

Keywords: *Cymbalaria muralis*, Scrophulariaceae, unrecorded naturalized plant

적 요: 서울특별시 은평구 불광동의 나지에서 채집한 덩굴해란초(*Cymbalaria muralis* P. Gaetrn.)를 국내 미기록 귀화식물로 보고한다. *Cymbalaria*속은 국내에 처음 보고되는 속으로 현삼과에 속하며, 손바닥 모양의 잎을 가지고, 덩굴손은 없으나 땅에 닿는 마디에서 뿌리를 내려 퍼져 나가는 모습이 덩굴에 가까우며, 꽃의 모양에 있어서 뒤편에 거가 있어 현삼과의 다른 식물과 쉽게 구별된다. 국명은 형태를 따라 덩굴해란초로 신청하였으며 종의 형태적 특징과 그림을 제시하였다.

주요어: *Cymbalaria muralis*, 현삼과, 미기록귀화식물

Introduction

Scrophulariaceae are large family, with about 3000 species in around 210 genera, mainly found from tropical to cool regions (Lawrence, 1963). Most of them are herbaceous, with a few shrubs and climbers, with one genus of tree (Pawlownia). Many of them in this family are popular with garden and ornamental plants and several are well-known weeds. Others are used for drugs. 25 genera 90 taxa in Korea have distributed as indigenous or non-indigenous status (Lee, 1996). The non-indigenous and naturalized plants of Scrophulariaceae in Korea are 9 species (Park, 1995) and the genus *Cymbalaria* is first reported here. *Cymbalaria* is a genus which contains 10 species of herbaceous plants in Scrophulariaceae. It is native to

southern Europe. *Cymbalaria* is closely related to the genera *Linaria* and *Antirrhinum*, but it differs in creeping growths and flowers born singly rather than in dense erect spikes. The various species differ in subtle details of leaf shape and flower colour; the flowers of one are pure white with a yellow centre and occasionally several species can be found growing together. It grows characteristically in sheltered crevices in walls and pathways, or in rocks, making a trailing or scrambling plant up to 1 m in length (Ellenberg et al., 1992).

The number of introduced non-native plants into Korea has been increased since the opening of the main harbor in 1876 and accelerated by trades and interchanges among countries (Yang et al., 2008). Recently, it is noticeable to use many kinds of unknown horticultural plants increasingly at home and garden. But up to now, little research about their impact on natural environment has been accomplished. It is required to

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find out and research about new naturalized plants in our ecosystem.

Here, we report an establishment of *Cymbalaria muralis* P. Gaetrn. in South Korea with illustration of morphological characteristics.

Materials and Methods

This study was carried out from September in 2006 to November in 2007 in Seoul, Korea. Locations, increasing trends, population size and surrounded vegetation of new naturalized plants were investigated. All collections including the duplicates were given a serial number from NIBR (National Institute of Biological Resources; NIBR). The voucher specimens which used in this study were deposited in KB (Herbarium of NIBR). The identification of plant was referred to illustrations from Osada (1997) and Shimizu et al. (2001). Descriptions and illustrations were written and drawn by specimen.

Results and Discussion

Cymbalaria muralis P. Gaetrn., B. Mey. & Scherb., Oekon. Fl. Wetterau 2: 397, 1800 (Fig. 1 & 2)

Korean name: Deong-gul-he-ran-cho (덩굴해란초)

Annual, creeping herbs with palmately lobed leaves. It is

native to the Mediterranean Sea. **Stems** with no hair are decumbent or vine-like and sometimes rooting at the nodes. **Leaves** grow alternately and their shapes are moderately shallow, rounded to triangular, often abruptly pointed. The average width of them are almost 1-3 cm and 5-9 lobed, like ivy. **Flowers** blooms solitary or irregular in leaf axils and spurred with usually small calyx 2-2.5 mm and corolla 9-15 mm. The colour of flowers is pale lilac to violet. The spur in flower is 1-3 mm long and corolla tube with conic or cylindrical spur at base, lower lip base swollen, closing mouth. It is in flower from May to September, and the seeds ripen during July and October. **Fruits** are spherical shaped and composed of several chambers. They are ± 4 mm in diameter, glabrous and pedicel growing away from light. Seeds are black and about 1 mm in diameter.

Distribution: It ranged from the South of Europe and Britain (Janyszek and Górski, 2005). In Japan, it was distributed at Hokkaido and Kyushuku (Shimizu et al., 2001). Originally, it was known to be introduced as an ornamental use in Japan (Osada 1997). *Cymbalaria muralis* was known to be invasive.

In Korea, the population of *Cymbalaria muralis* at Bulgwang-dong, Eunpyong-gu, Seoul city have discovered in a bare field near a well-drained ditch in 2006 and 2007. The population size was 100 cm \times 125 cm. Approximately 85% of them were abundantly flowering and fruiting. It has formed a single population with almost pure stand. And also five to six individuals

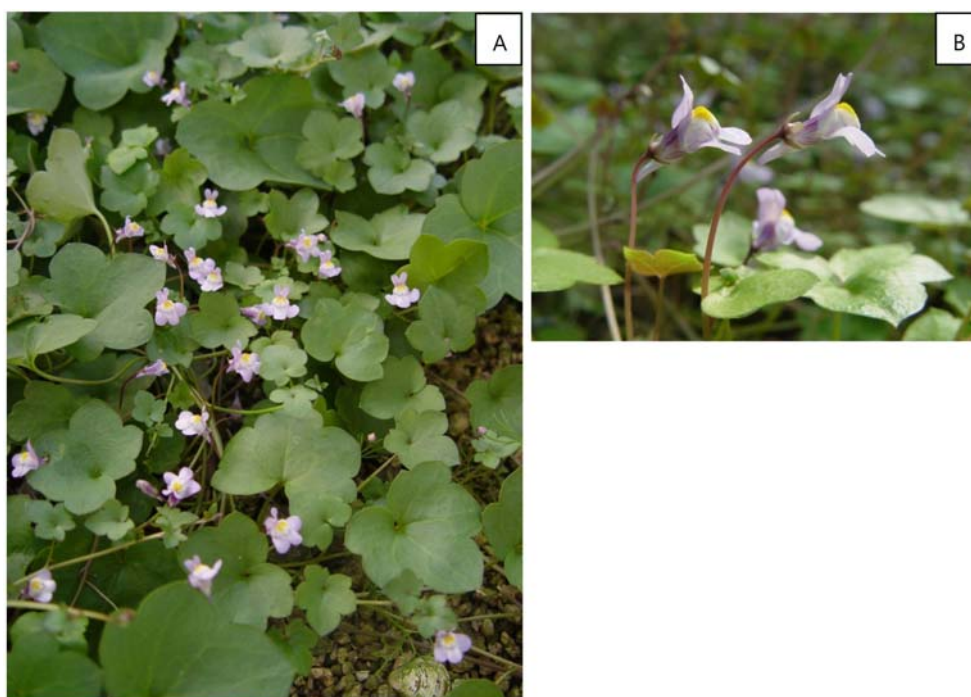


Fig. 1. *Cymbalaria muralis* P. Gaetrn. 덩굴해란초 (Kenilworth ivy, ivy leaved toadflax). A: Picture of *C. muralis*, B: corolla.

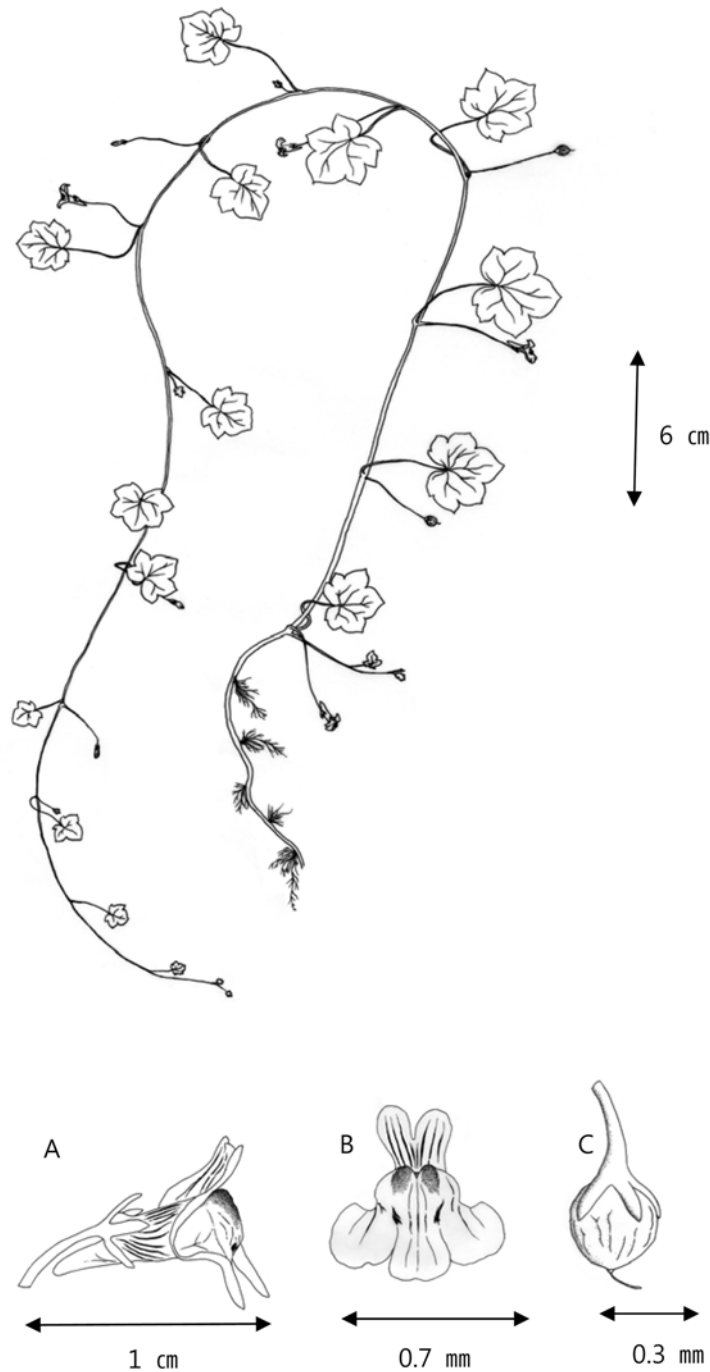


Fig. 2. Illustrations of *Cymbalaria muralis* P. Gaetrn. 덩굴해란초 A: flower and spur, B: front shape of flower, C: spheric fruit (NIBRVP0000100056, collected in September 1, 2007 at Bulgwang-dong, Eunpyong-gu, Seoul city by J.H. Kil).

were grown adjacent to the pure stand. It grows with *Taraxacum officinale* and *Oxalis corniculata* together. Because this plant creeps on the ground and sometimes roots at its nodes, it is difficult to get an exact number of individuals in the population. In the surveyed population, it has grown around

38 individuals. It has increased their area and distribution into nearby ground in 2007 comparing to the year of 2006. It was reported to distribute in Cheonggyecheon.

Specimens examined: KOREA: Seoul, Eunpyong-gu, Bulgwang-dong, 1 Sep. 2007, *J.H. Kil s.n.* (4 sheets, KB), 25

Aug. 2007, J.H. Kil s.n. (KB)

Remark: The population of *Cymbalaria muralis* formed a small size of area where it was found, but it has increased their area and distribution comparing to the previous year. It is estimated to spread into surrounding area. Especially, it could be spread more easily by seeds and roots at its nodes. *Cymbalaria muralis* is distinguished from other genus in Scrophulariaceae by palmately-lobed leaves, vine-like stems and cylindrical spur at base in its flower. It is closely related to the genera *Linaria*, but it differs in having creeping growth and flowers borne singly rather than in dense erect spikes. Therefore, the local name is 'Deong-gul-he-ran-cho'.

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