1 Introduction

1.1 Distribution of *Scutellaria*

The genus *Scutellaria* belongs to the family Labiatae and subfam. Scutellarideae. *Scutellaria* is widely distributed all over the world except for South Africa, and there are about 300 species. The calyx of this genus is remarkably specialized to become two-lip-shaped, and characterized by the upper lip having a flat or dish-shaped upper surface on which a small swelling forms; the dish-shaped part peels off at fruit maturation to allow a seed to fall.

The 15 species, such as *S. maekawa* Hara, *S. brachyspica* Nakai et Hara, *S. laeteviolace* Koizumi, *S. iyoensis* Nakai and others are distributed only in Japan (Kitamura et al. 1975; Satake et al. 1981). Further *S. indica* L., *S. indica* var. *parviflora* Makino, *S. sterigillosa* Hensl, *S. dependens* Maxim. and others are distributed over wide areas in Japan, the Korean Peninsula, the northeastern section of China and the Indonesian Peninsula (Kitamura et al. 1975; Satake et al. 1981). Furthermore, *S. baicalensis* Georgi is native to the region from the northern section of China to Siberia. It was introduced into Japan from the Korean Peninsula in the middle period of the Edo era and has been cultured in various parts of Japan for the medicinal uses of the root. In Japanese Pharmacopoeia (undecima ed. Niphon-koteisho Yokai 1986) the root of *S. baicalensis* Georgi, excepting the exodermis, is used as medicinal Wogon (Scutellariae Radix).

In China, many plants belonging to the *Scutellaria* genus are distributed and the root of *S. baicalensis* Georgi is mainly used as medicinal Wogon but the following seven species are also used as a source for medicinal Wogon, *S. viscidula* Bye, *S. amoena* Wright, *S. rehderiana* Diels, *S. likiangesis* Diels, *S. ikonnikovii* Juz., *S. hypericifola* Levl., and *S. rivularis* Wall (Ban Zhi Lian). Further, in the Alpine districts of Europe, *S. alpina* L. and *S. costericana* H. Wendel are distributed and cultured as garden species for their attractive flowers.

Studies on the constituents of *Scutellaria* species have been made, i.e., *S. amoena* C.H. Wright (Liu et al. 1980), *S. viscidula* Bunge (Yu et al. 1984), *S. rivularis*

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2 Material for Medicine (Nanking Pharmaceutical Institute 1959); Dictionary of Chinese Medicine (Koso New Medical Institute 1978); Chinese Pharmacopoeia (Institute of Pharmacy, Chinese Ministry of Sciences 1979)
Scutellaria baicalensis Georgi

Wall (Tomimori et al. 1984c, 1986c) S. discolor Colebr (Tomimori et al. 1986a), S. indica L. (Miyaichi et al. 1987), S. scandens Buch, Ham ex D. Don (Miyaichi et al. 1988), and others.

1.2 Importance of S. baicalensis

Wogon is one of the crude drugs frequently used as an important medicine in Chinese clinical practice. The origin of this crude drug is the plant S. baicalensis Georgi, and its root, excepting the exodermis, is prescribed in the Japanese Pharmacopoeia JPXI and compounded in many Chinese medicines including Sannosan and others, for treatment of diarrhea, abdominalgia, anorexia, hot flash, stiffness of the shoulders, agrypnia, or the like. S. baicalensis is a perennial plant native to the region from the north section of China to Siberia, as mentioned above, and grows to a height of 30–60 cm, spreading in a semi-spherical shape, with a lanceolar leaf having many hairs. From June to July, the leading end of each branch produces purple ear-shaped flowers (Fig. 1) and the root is long and conical in shape, the interior showing a golden color.

The study of components of Wogon prepared from plants originated from S. baicalensis has concentrated on flavonoids, and about 40 kinds of flavonoids (Shibata and Hattori 1931; Takido 1973; Takido et al. 1975, 1979; Takagi et al. 1980, 1981a,b; Tomimori et al. 1982, 1983, 1984a,b) ranging from flavonoids relatively

![Fig. 1. Scutellaria baicalensis Georgi](image-url)