

# Buyer Beware: *Scutellaria lateriflora*

Network Nutrition brings you the latest research into the quality aspects of herbal extracts. Featured in this article is the infamous herb *Scutellaria lateriflora*

The genus *Scutellaria* consists of over 350 species worldwide. The *Scutellaria* species are renowned for their rich diversity and abundance of flavonoids, to which most of its medicinal properties are ascribed. Other chemical constituents of the *Scutellaria* genus include volatile oils, iridoids, diterpenoids, waxes and tannins. Studies conducted on the identification of flavonoids within *S.lateriflora* reveal baicalein and its glucuronide, baicalin as the major flavonoid present.

*S.lateriflora* is a North American native leafy perennial half a metre in height with erect branches bearing opposite pairs of oblong leaves and clustered bluish-violet flowers. The above ground parts are used in herbal medicine and the plant is normally harvested just before the flower buds bloom. This can vary from early spring to late in the flowering period. It is a member of the *Lamiaceae* family and has a rich history of use as a nerve tonic, sedative and anti-convulsive herb.

*S.lateriflora* is difficult to grow as it requires moist soil, some shade and protection from the elements. Recently, growers in the US have experienced issues with the cultivation of Skullcap due to crop failures and various other issues. Availability of authentic material at the moment is drastically scarce and has resulted in substitution with other species of the *Scutellaria* genus. In particular, *Scutellaria galericulata*, a northern temperate zone plant has been recently found to be used as a substitute in the UK and Europe.

Another problem we are faced with is that *S.lateriflora* often dries to a low weight and is quite commonly substituted with the heavier and more abundant *Teucrium chamaedrys* and *Teucrium canadense*. The *Teucrium spp.* have been linked to some cases of liver damage and to make matters worse, this plant grows in similar regions and often in the exact same location as *S.lateriflora*, presenting challenges for the accurate harvesting of *S.lateriflora*.



*Scutellaria lateriflora* is distinguishable by its blue flowers

With the scarcity of raw material upon us largely due to crop failure, Extract Chemie has tested no less than 12 different sources of material claiming to be *S.lateriflora*, and in all 12 cases has found the material to be of species other than *S.lateriflora*. In each case, the grower has had the best intentions in thinking that their plant was indeed *S.lateriflora*, only to be shocked to find out they are unknowingly growing and selling a substitute material.

This has resulted in a need within our industry to rigorously test all raw material and ensure the correct material is being used within products. Network Nutrition commissions regular independent analysis of various herbal materials procured from our industry in the interest of monitoring and observing differences in the quality of herbal extracts. See below for HPLC fingerprint analysis reports showing the variation between different batches of *S.lateriflora* and herbs falsely claiming to be the same species.

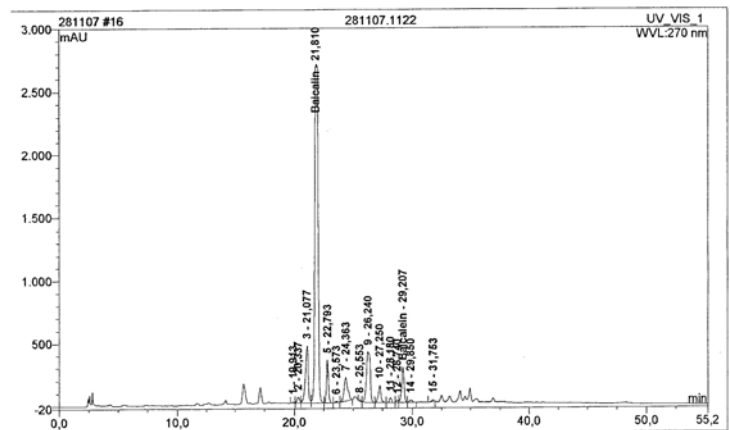


Figure 1 - HPLC fingerprint for authenticated *Scutellaria lateriflora*. Botanical authentication performed with macroscopic identification by Prof. Rudi Bauer, Karl-Franzens Universitat, Austria and confirmed by chemical identification.

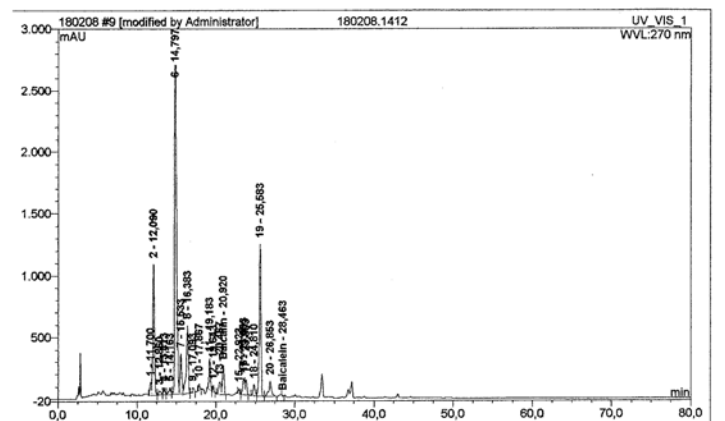


Figure 2 - HPLC fingerprint for a herb claiming to be *Scutellaria lateriflora*. Based on the presence of baicalin and baicalein, it can be confirmed that this plant is indeed from the species *Scutellaria*, but is not *S.lateriflora*.

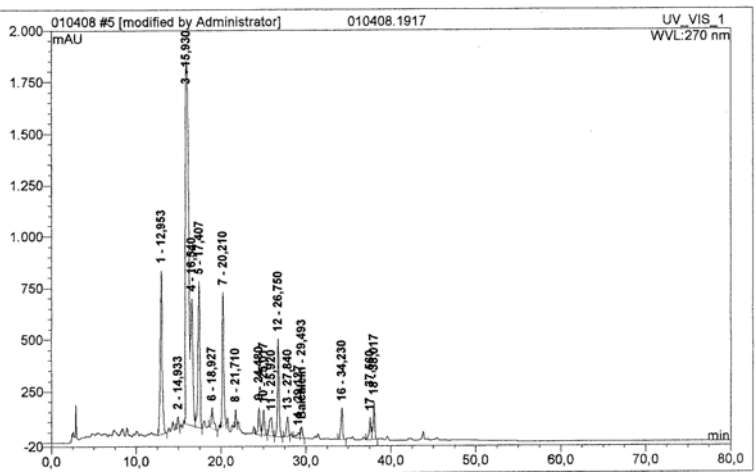
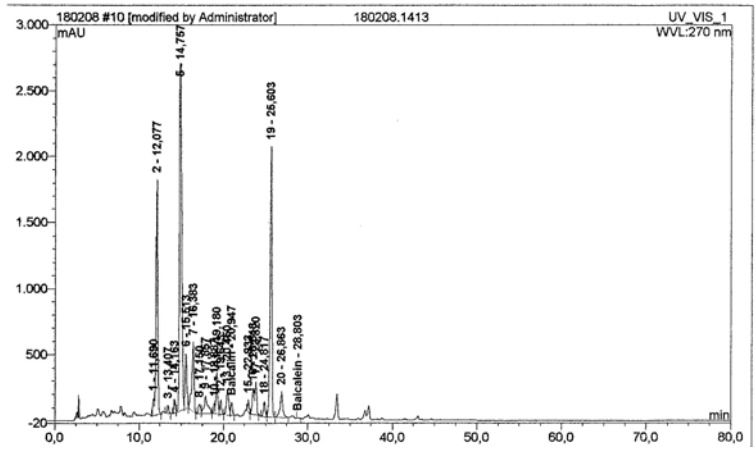


Figure 4—HPLC fingerprint for another herb claiming to be *S. lateriflora*.

Figure 3—Another herb claiming to be *Scutellaria lateriflora*. In this herb baicalein is present but baicalin is either absent or not detectable—making certain this herb is definitely not *S. lateriflora*.



There are a number of steps you can take to assure yourself that you have genuine *S. lateriflora*.

1. Only utilise material from a trusted source that is able to provide full documentation on the herb and the manufacturing site at which the herb is made;
2. Demand proof of authenticity and traceability, and if uncertain, contact the botanist that carried out the authentication to legitimise the information provided;
3. Have a third party independent laboratory verify the material you are using (but firstly ensure that they have adequate resources to test this herb) and,
4. Conduct only HPLC qualitative analysis as TLC can sometimes be an insufficient method for distinguishing the various species of *Scutellaria*.

If you currently use or are considering using *Scutellaria lateriflora* in your product, Network Nutrition recommends sending a sample of your material to Southern Cross University to independently confirm the species. The qualitative analysis comes at a nominal cost and is well worth the expense.

- Any enquiries relating to this article can be directed to [enquiries@networknutrition.com](mailto:enquiries@networknutrition.com)
- Enquiries related to testing of your material at Southern Cross University should be directed to Mr. Ashley Dowell, Manager, Analytical Division, Centre for Phytochemistry & Pharmacology at SCU – [ashley.dowell@scu.edu.au](mailto:ashley.dowell@scu.edu.au)
- Don't be caught out! Exercise necessary diligence on the quality and identity of your herbs today and ensure that your customers are getting the right herb for the intended purpose. It is far easier to take proactive steps than it is to take reactive ones.



Network Nutrition shares a rich history with Extract Chemie and is proud to be its exclusive partner in Australia and New Zealand

