

Research article

Extraction and Isolation of Solasodine from *Herba Solani Procumbensis* for Use as a Reference Standard in Quality Control of Health Supplements

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ABSTRACT

Solanum procumbens is a medicinal herb widely used in traditional medicine for the treatment of rheumatism, hepatitis, and cirrhosis. The plant contains steroidal glycoalkaloids such as solasonine and solamargine, as well as solasodine, which represents the aglycone of these compounds. In the Vietnamese Pharmacopoeia V, solasodine is used as a marker compound for the quantitative analysis of herba *Solani procumbensis*. However, a domestically established solasodine reference standard is currently unavailable in Vietnam.

The present study aimed to establish a practical procedure for the extraction, isolation, purification, and structural confirmation of solasodine from *Solanum procumbens*. Dried plant material (5.0 kg) was extracted under reflux with 80% ethanol acidified with citric acid to obtain a crude extract. The extract was subsequently subjected to macroporous resin chromatography (HP-20) to enrich the glycoalkaloid fraction.

The enriched alkaloid fraction was then converted into solasodine through controlled acid hydrolysis, in which the reaction was carried out under mild conditions and monitored by TLC to ensure efficient cleavage of glycosidic bonds while minimizing degradation of the steroidal skeleton. After neutralization and precipitation of the free alkaloid, the crude product was purified by silica gel column chromatography followed by recrystallization to afford 6.8 g of solasodine. The structure of the isolated compound was confirmed by ¹H NMR, HRMS, IR, and HPLC, **and its content was determined to be 96.5% by HPLC–DAD.** The results demonstrate a feasible approach for obtaining solasodine from *S. procumbens* and provide a basis for establishing a domestic solasodine reference standard in Vietnam.

Keywords: solasodine, herba *Solani procumbensis*, extraction, isolation, establishing reference standard.
