

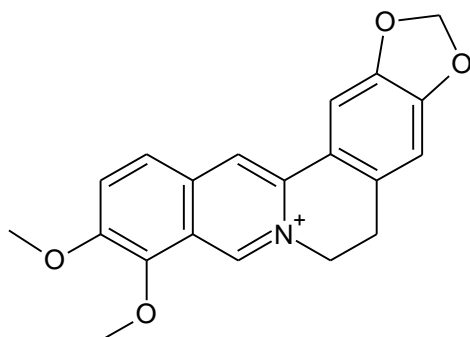


Test Report

Sample name: Berberine
Client: Hansen Sp. z o.o., ul. Zaborowska 8, 05-083 Zaborów, Poland
Purpose of test: Verification of delivered product
Sample description: Berberine
Brand name: Hansen Supplements

Description of substance:

Sample size: 10g
Property: Intensive yellow powder
Formula: C₂₀H₁₈ClNO₄ (as hydrochloride hydrated form)
CAS number: 633-65-8
Structure:



Batch No.: 0308
Date received: 15.06.2022
Test items: Identification of substance, purity, heavy metals
Summary: The sample has been identified and found to be of high quality
Measured purity: **Above 98%** according to ¹H NMR analysis aided by HSQC spectrum. Appropriate spectra are presented in Fig. 2,3.
Authentication method: Standard and literature (Fu, S., Xie, Y., Tuo, J., Wang, Y., Zhu, W., Wu, S., Yan, G. and Hu, H., 2015. Discovery of mitochondria-targeting berberine derivatives as the inhibitors of proliferation, invasion and migration against rat C6 and human U87 glioma cells. MedChemComm, 6(1), pp.164-173.) berberine shifts.



All values are within the relevant standards

Test results:

Purity:

Heavy metals: n.d.

Pb (Lead): n.d.

Hg (Mercury): n.d.

Cd (Cadmium): n.d.

As (Arsen): n.d.

Comments:

n.d. – not detected, below limit of detection on AAS spectr AA240FS + AA240Z + GTA120

Date: 01.07.2022

Tested by: Antoni Szumny

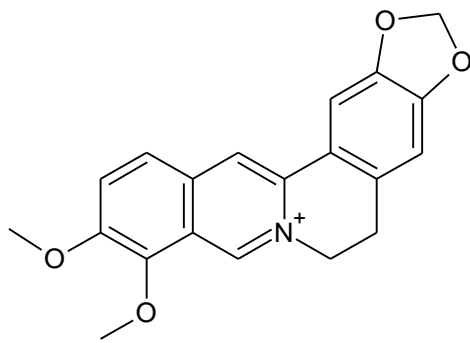


Figure 1. Chemical structure of Berberine

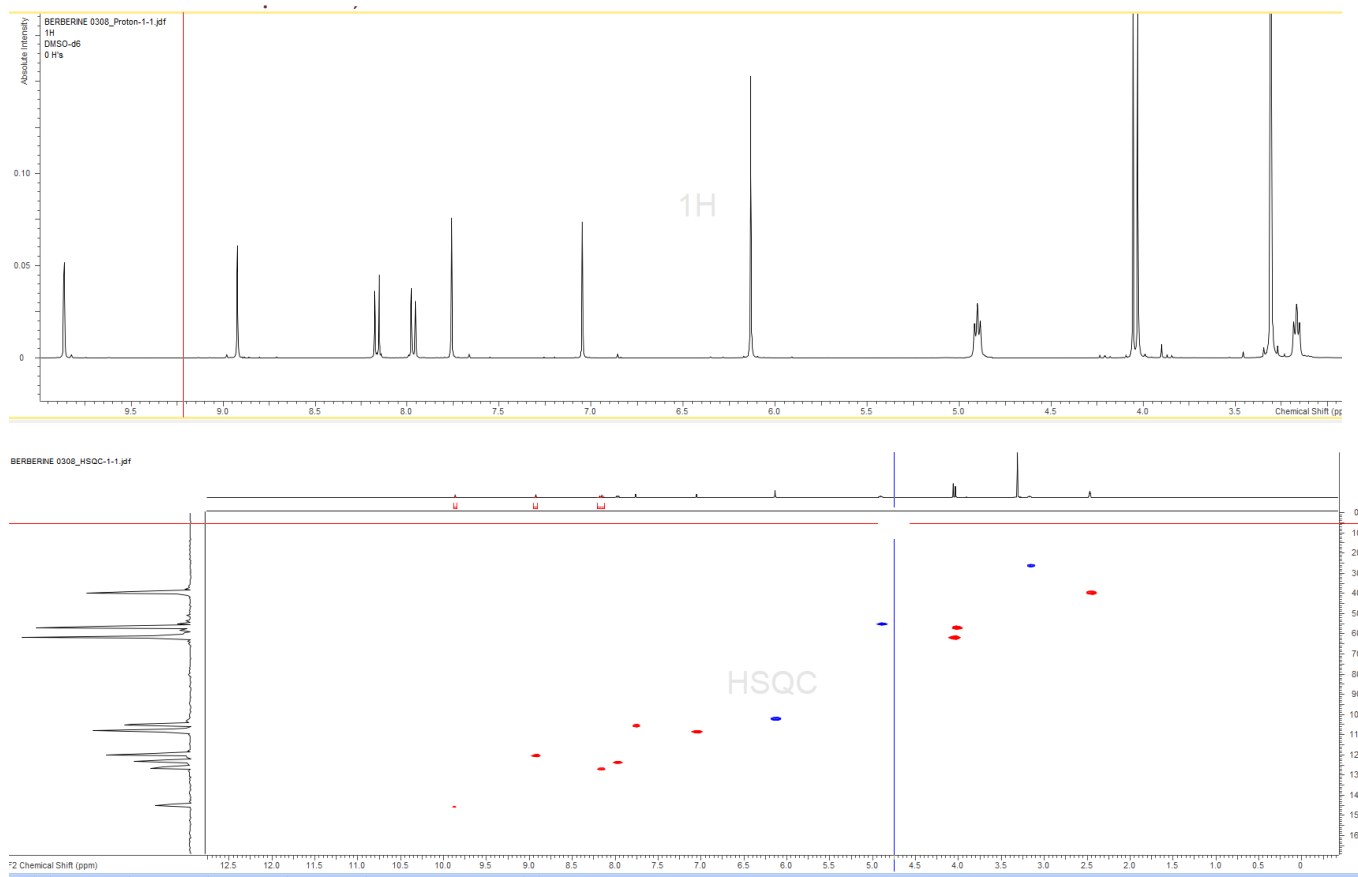


Figure 2. ^1H (up) and HSQC (down) spectrum of berberine (in DMSO);

10.07.2022 Antoni Szumny

