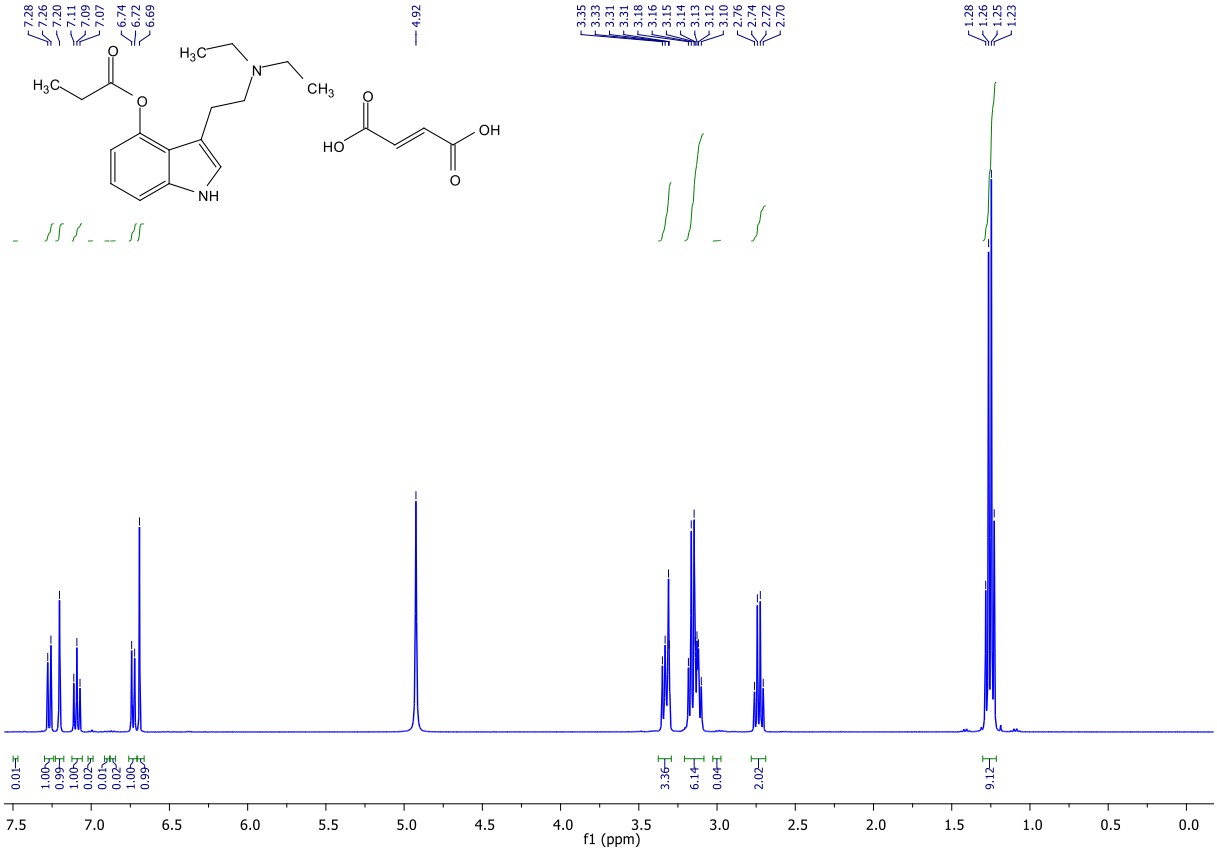
^{1}H NMR analysis report

Batch No.: 4-PRODF_01 **Date:** 11/11/2026

Instrument: Bruker 400 MHz
Solvent: Methanol-d_4 (CD_3OD); spectra calibrated to residual solvent peak (δ = 3.31 ppm)

Expected structure: 4-Propionyloxy-*N*,*N*-diethyltryptamine, hemifumarate

Results:
Data consistent with the proposed structure: Yes
Estimated purity: 98-99%



^{1}H NMR (MeOD), cmpd and imp integrated.

^{1}H NMR (400 MHz, MeOD) δ (ppm): 7.27 (d, *J* = 8.2 Hz, 1H, Ar-H), 7.20 (s, 1H, Ar-H), 7.09 (t, *J* = 7.9 Hz, 1H, Ar-H), 6.73 (d, *J* = 7.7 Hz, 1H, Ar-H), 6.69 (s, 1H, CH), 3.37 – 3.28 (m, 2H, CH_2; overlap with residual CD_2HOD peak), 3.21 – 3.08 (m, 6H, 3 × CH_2), 2.73 (q, *J* = 7.5 Hz, 2H, CH_2), 1.30 – 1.22 (m, 9H, 3 × CH_3)

Notes:

The acquired ^{1}H NMR spectrum is fully consistent with the proposed molecular structure. The compound is present as a fumarate salt. The integral ratio of the aromatic proton (Ar–H) resonances to the fumarate olefinic proton signal (δ = 6.69 ppm) is 1:1. Given that fumaric acid contains two olefinic CH groups, this corresponds to a 2:1 molar ratio of the analyte to fumaric acid, confirming the formation of the stoichiometric hemifumarate salt.

All four aromatic protons can be readily assigned, including the characteristic indole H-2 singlet at δ = 7.20 ppm. Additional resonances corresponding to the ethyl group of the propionyloxy moiety, the symmetrical ethyl groups of the *N,N*-diethyl substituent, and the R–CH_2–CH_2–R bridge are clearly distinguishable. These spectral features provide unambiguous confirmation of the proposed structure.

The analyzed sample contains a minor amount of an unidentified impurity (approx. 1–2 mol%), the identity of which could not be established from the available NMR data. No signals corresponding to residual solvents were detected.