

**Supporting informations
for
Synthesis and biological application of isosteviol-
based 1,3-aminoalcohols**

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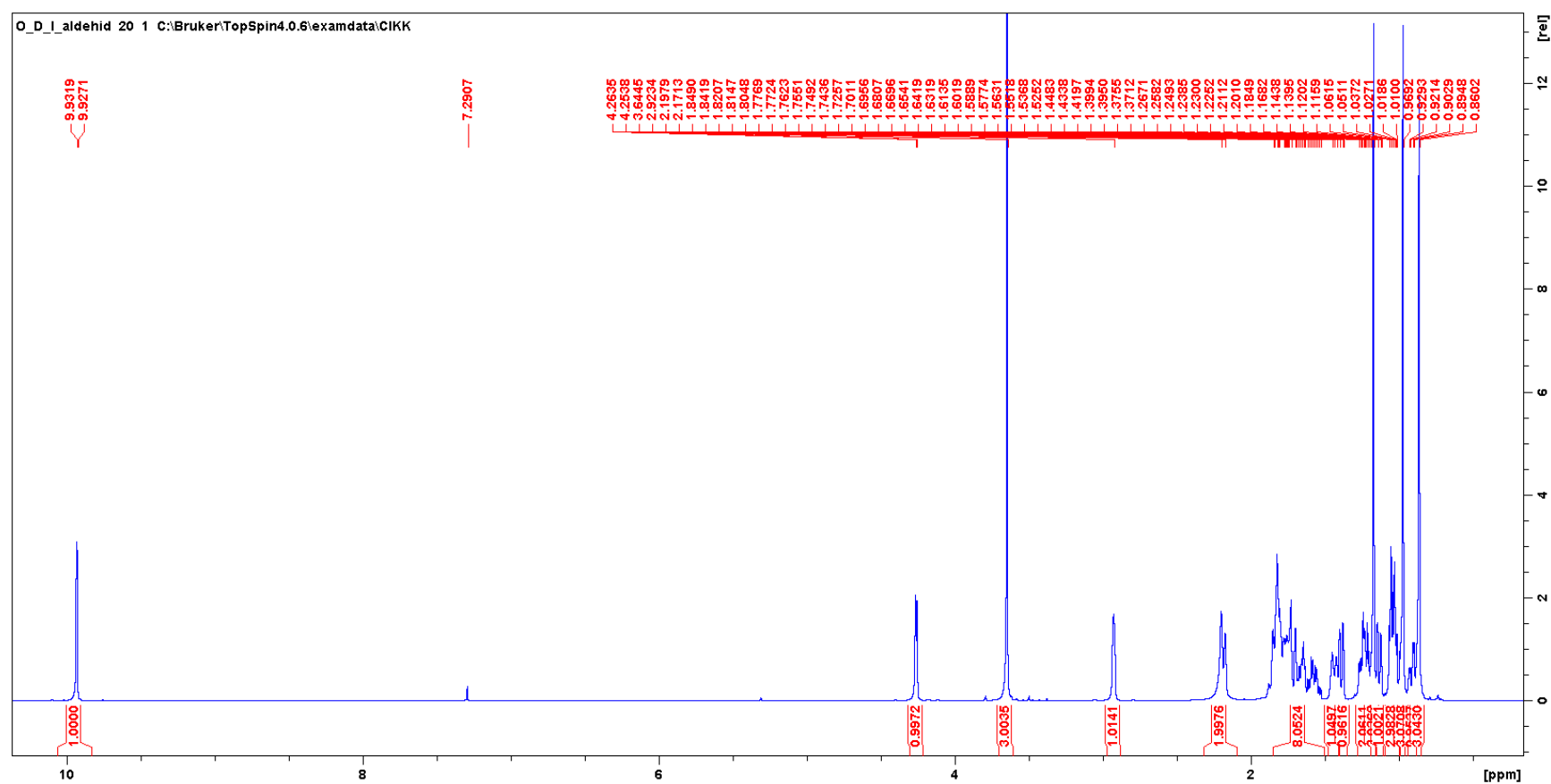
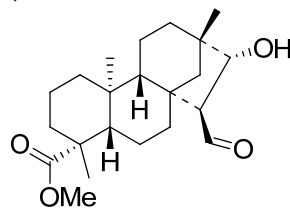
³ Interdisciplinary Centre of Natural Products, University of Szeged, H-6720 Szeged, Eötvös utca 6, Hungary

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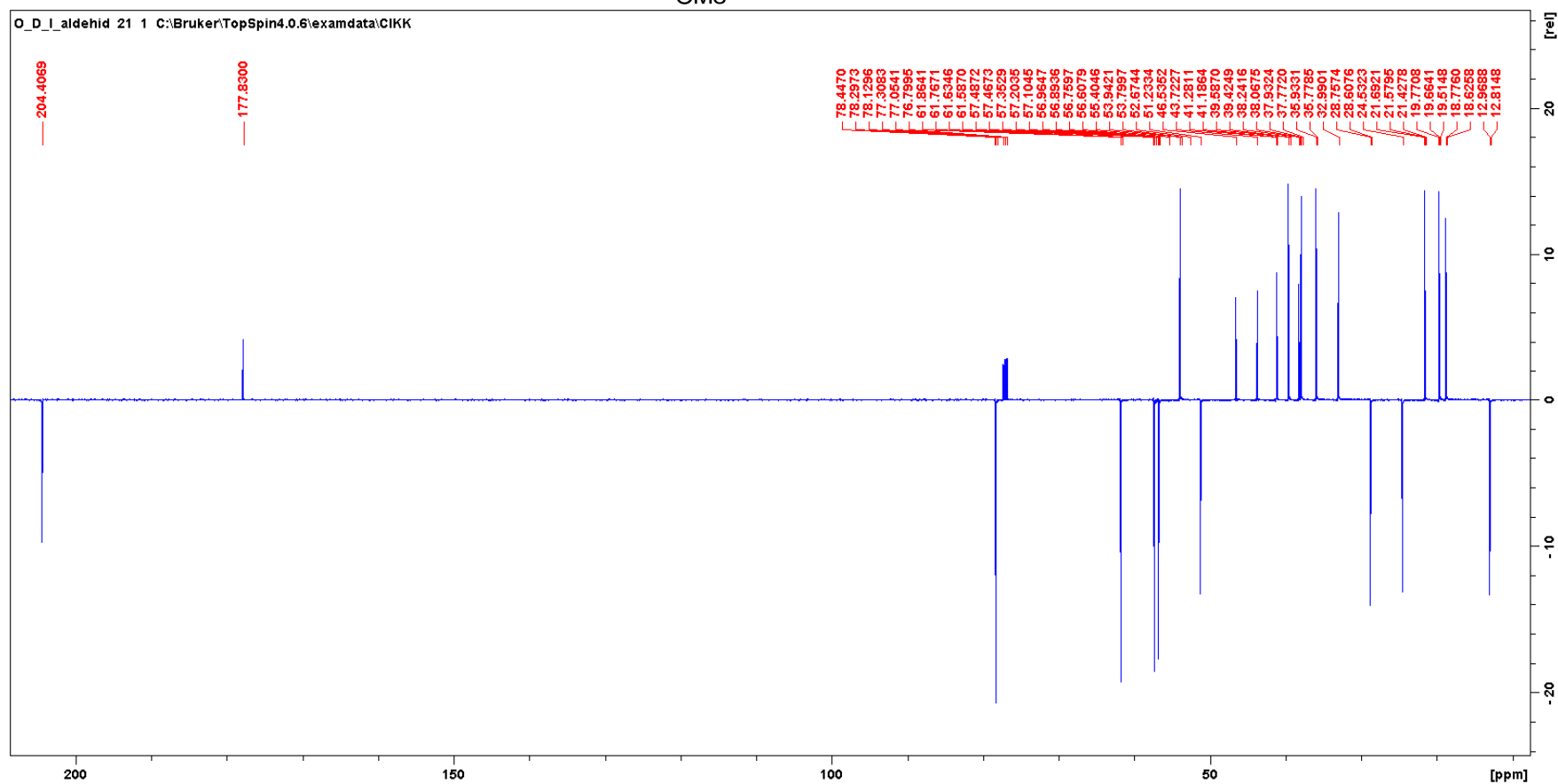
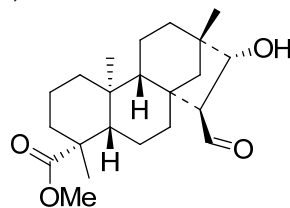
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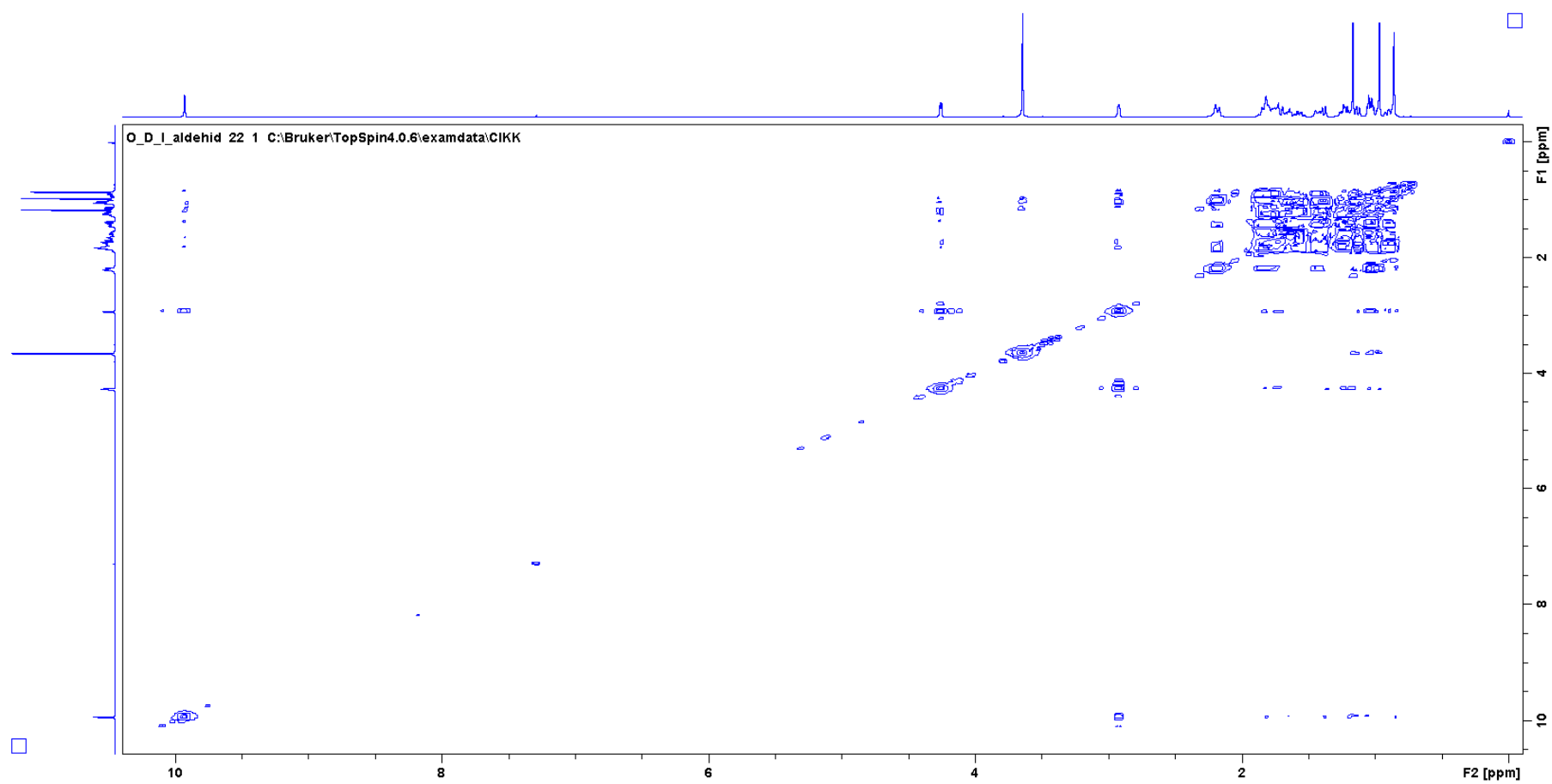
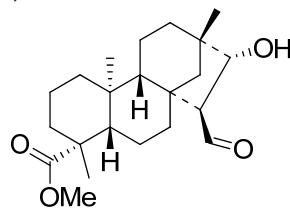
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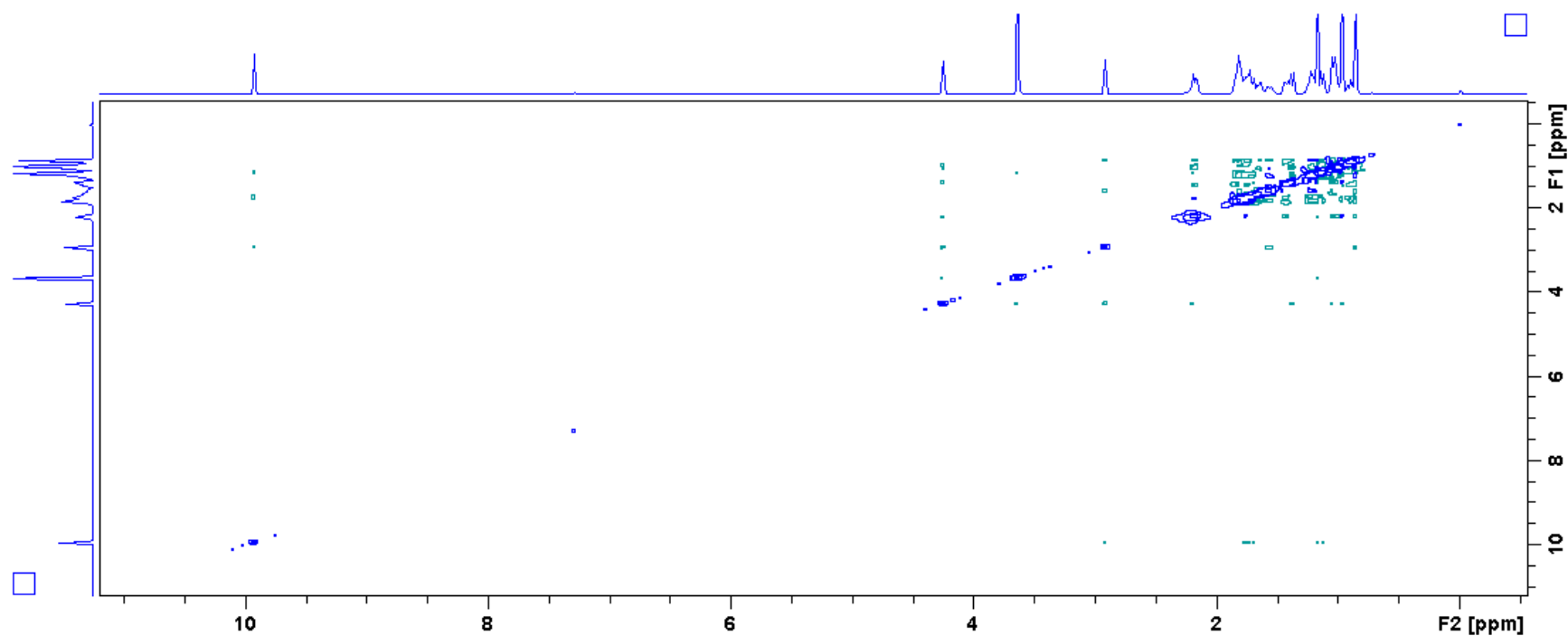
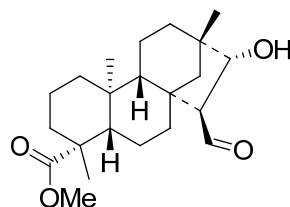
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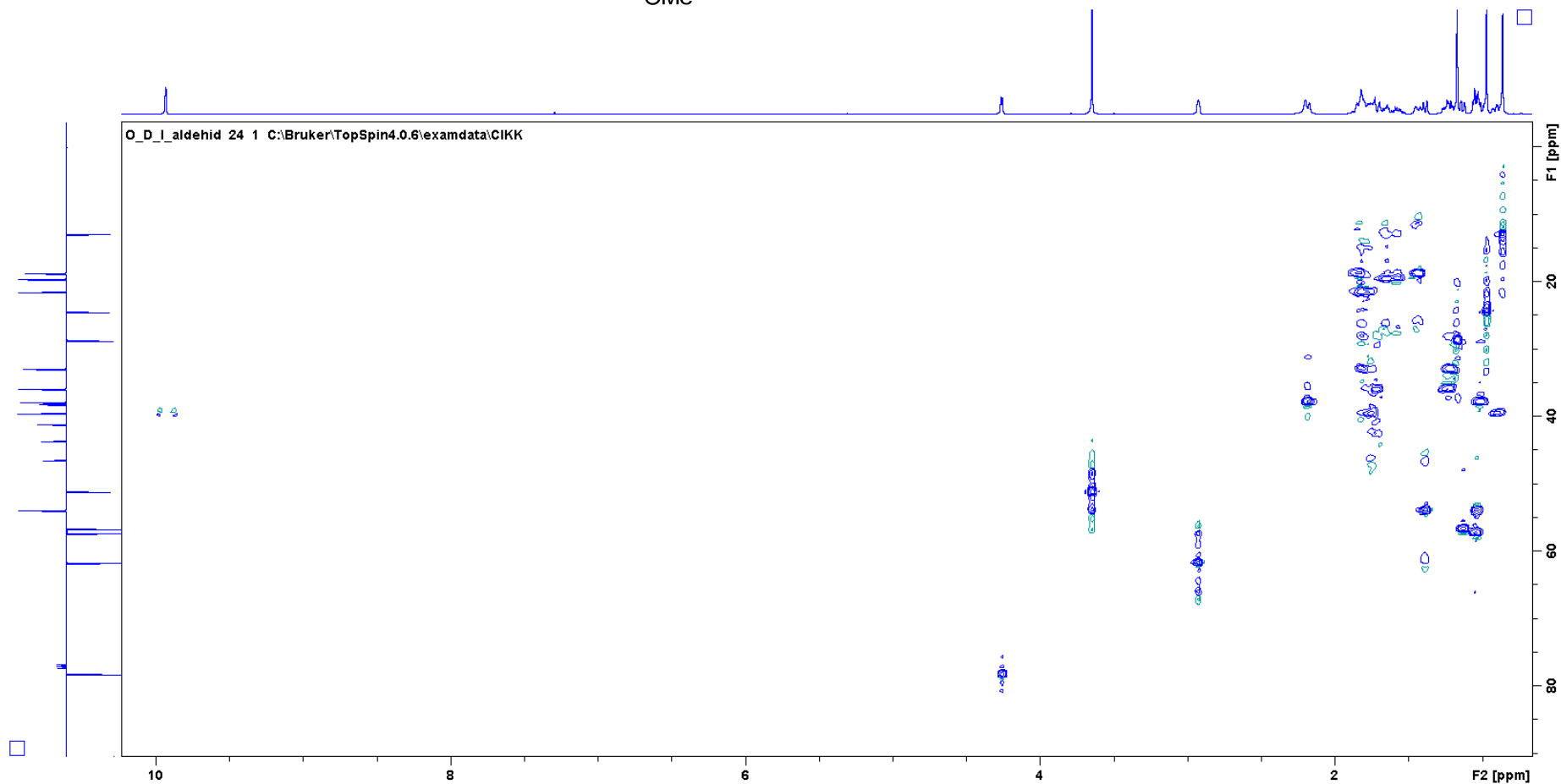
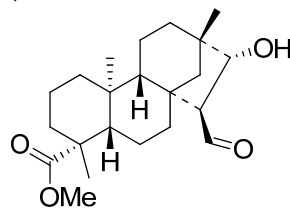
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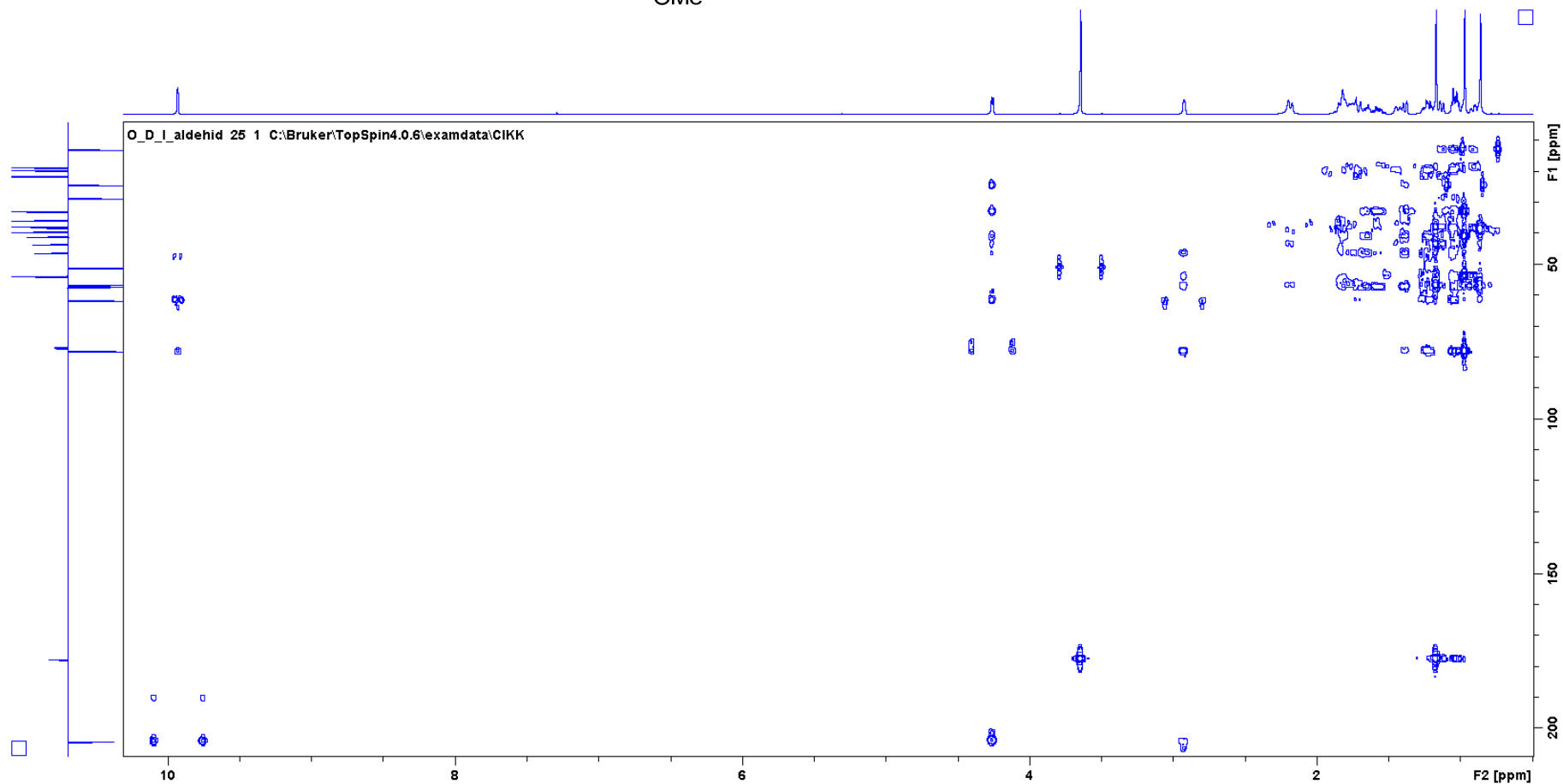
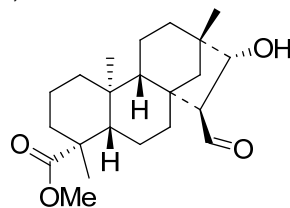
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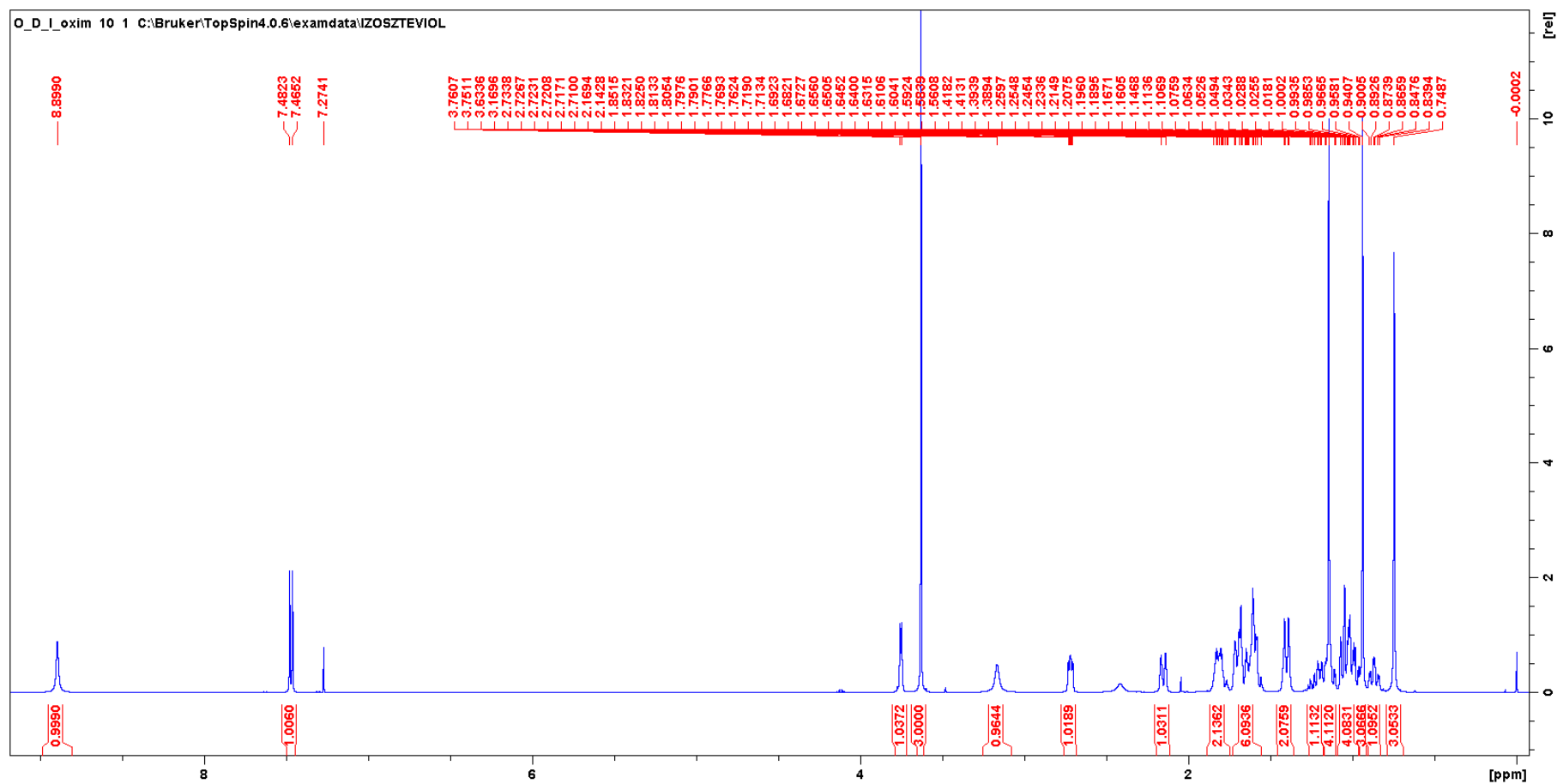
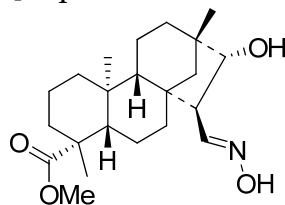
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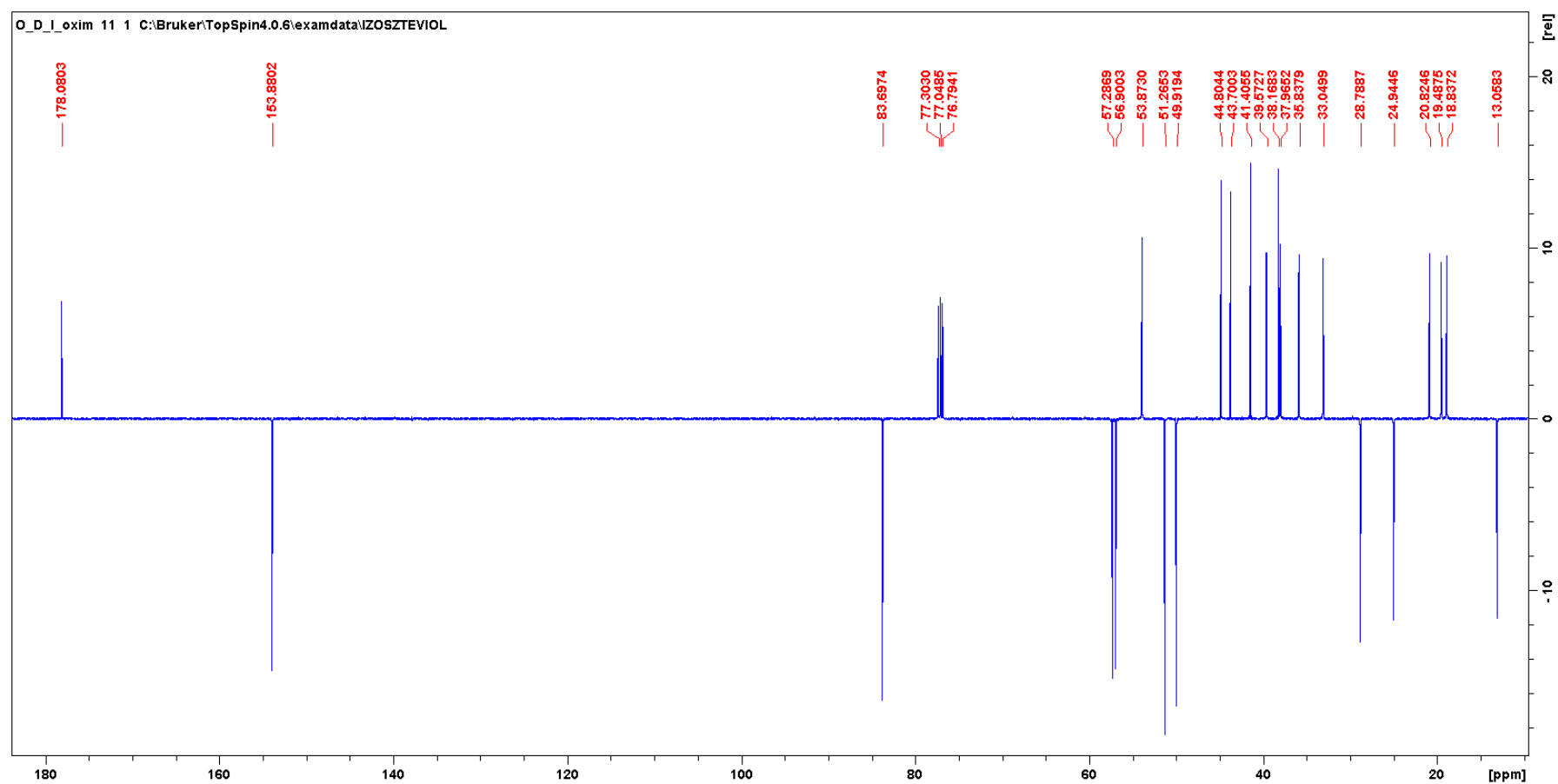
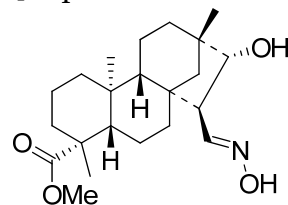
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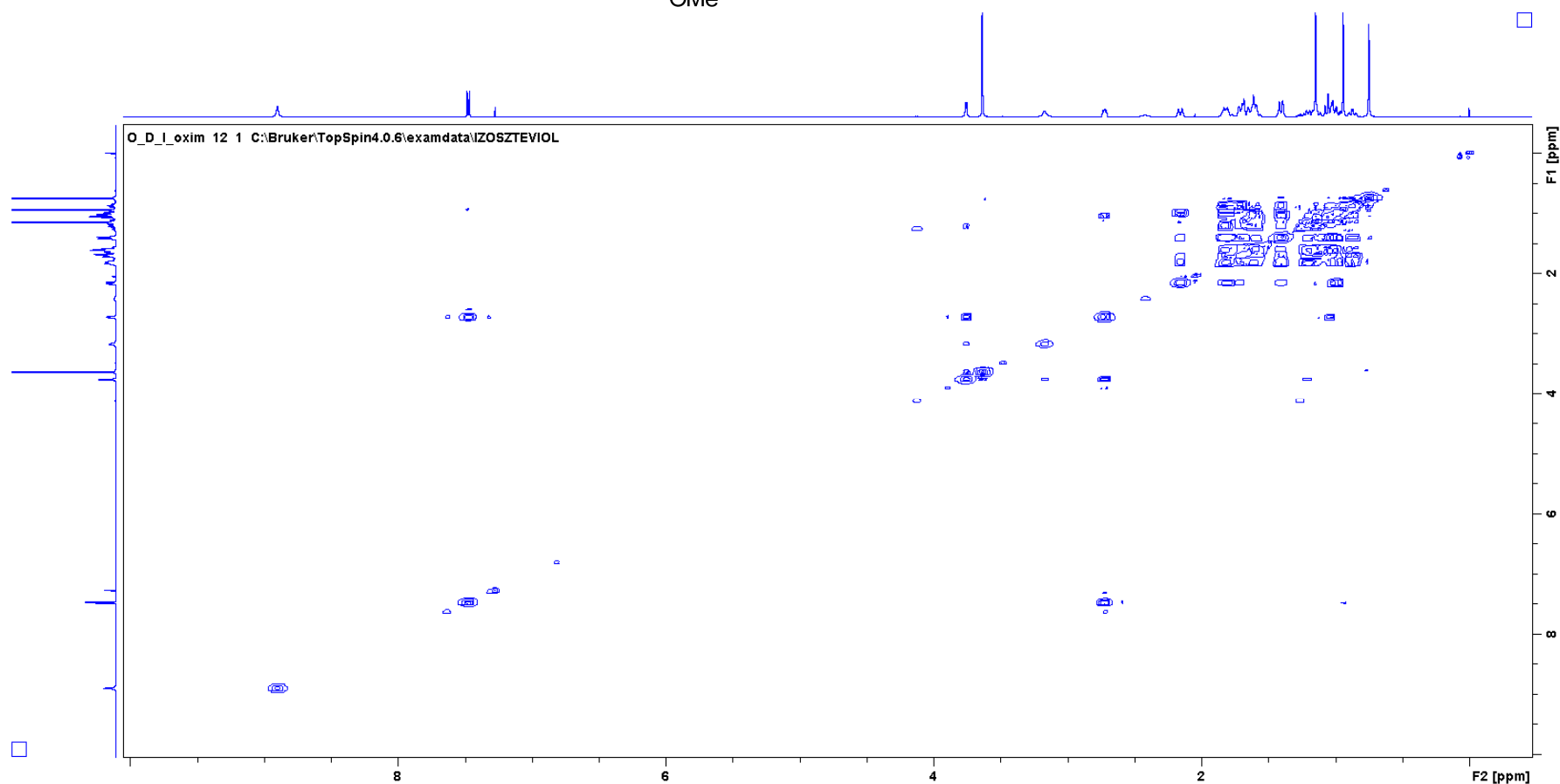
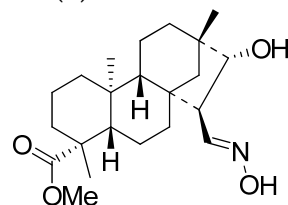
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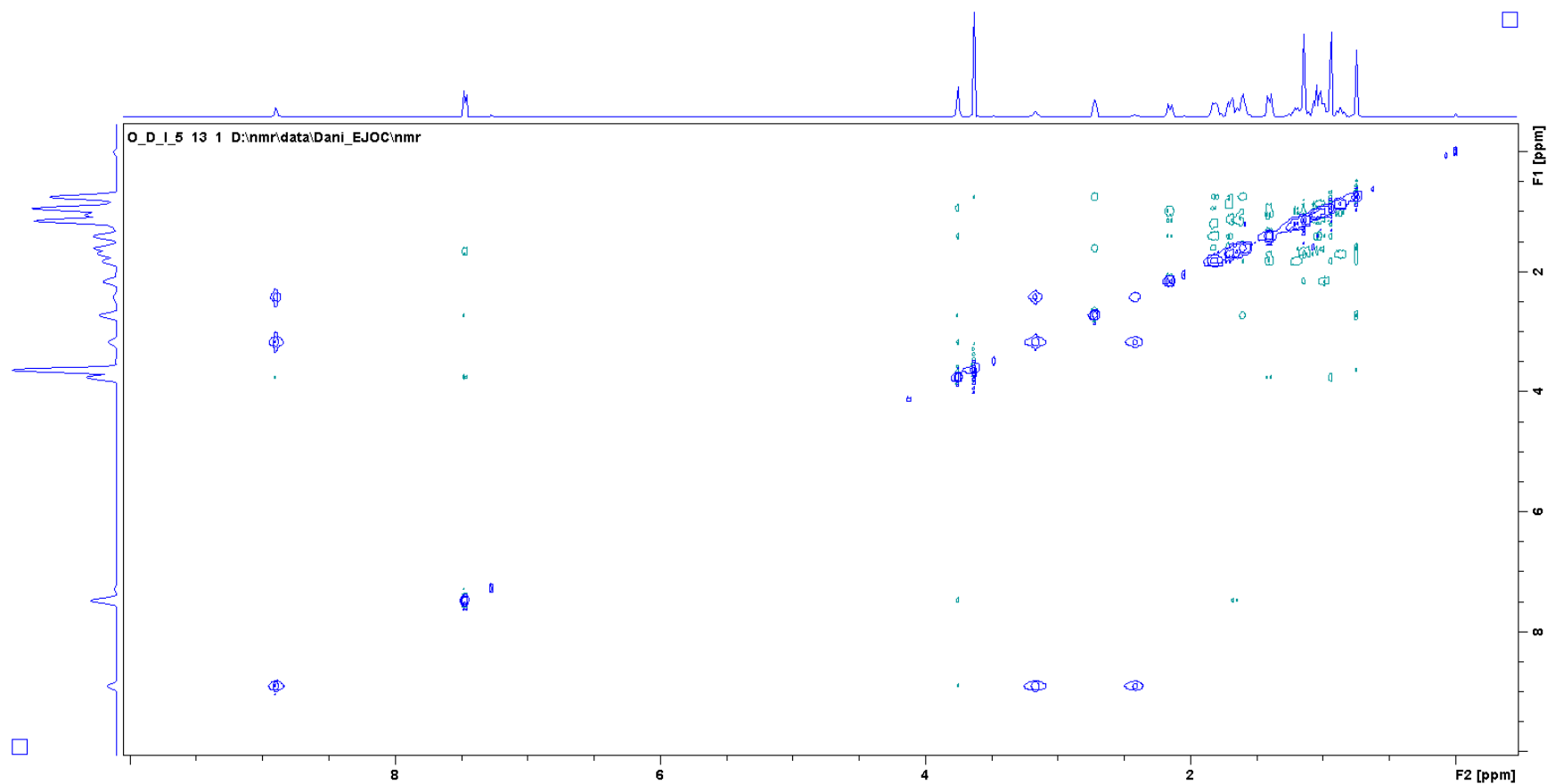
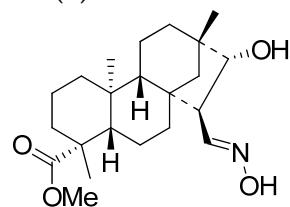
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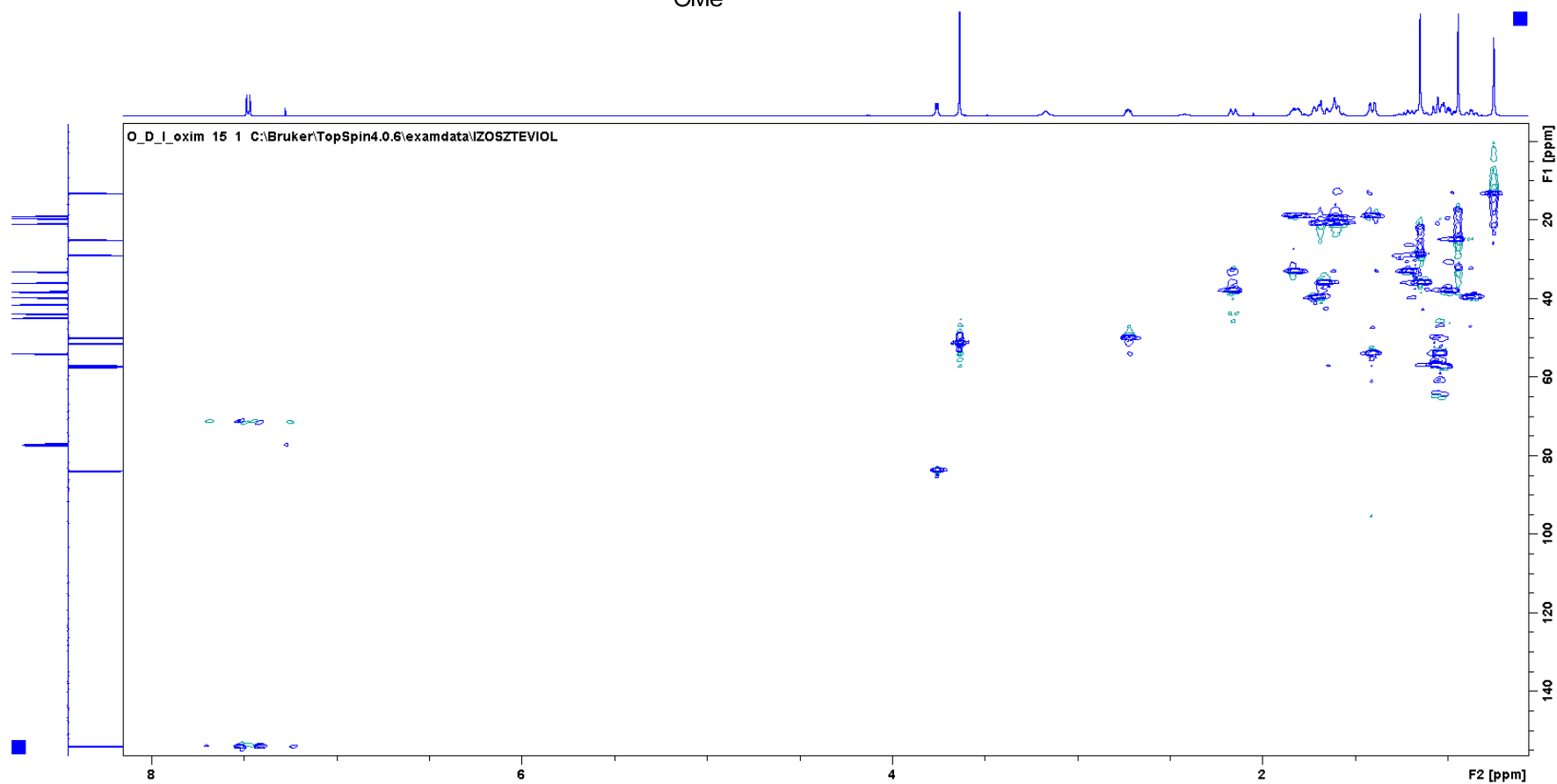
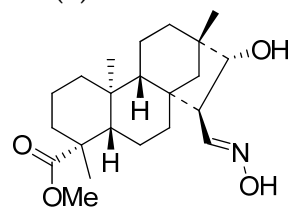
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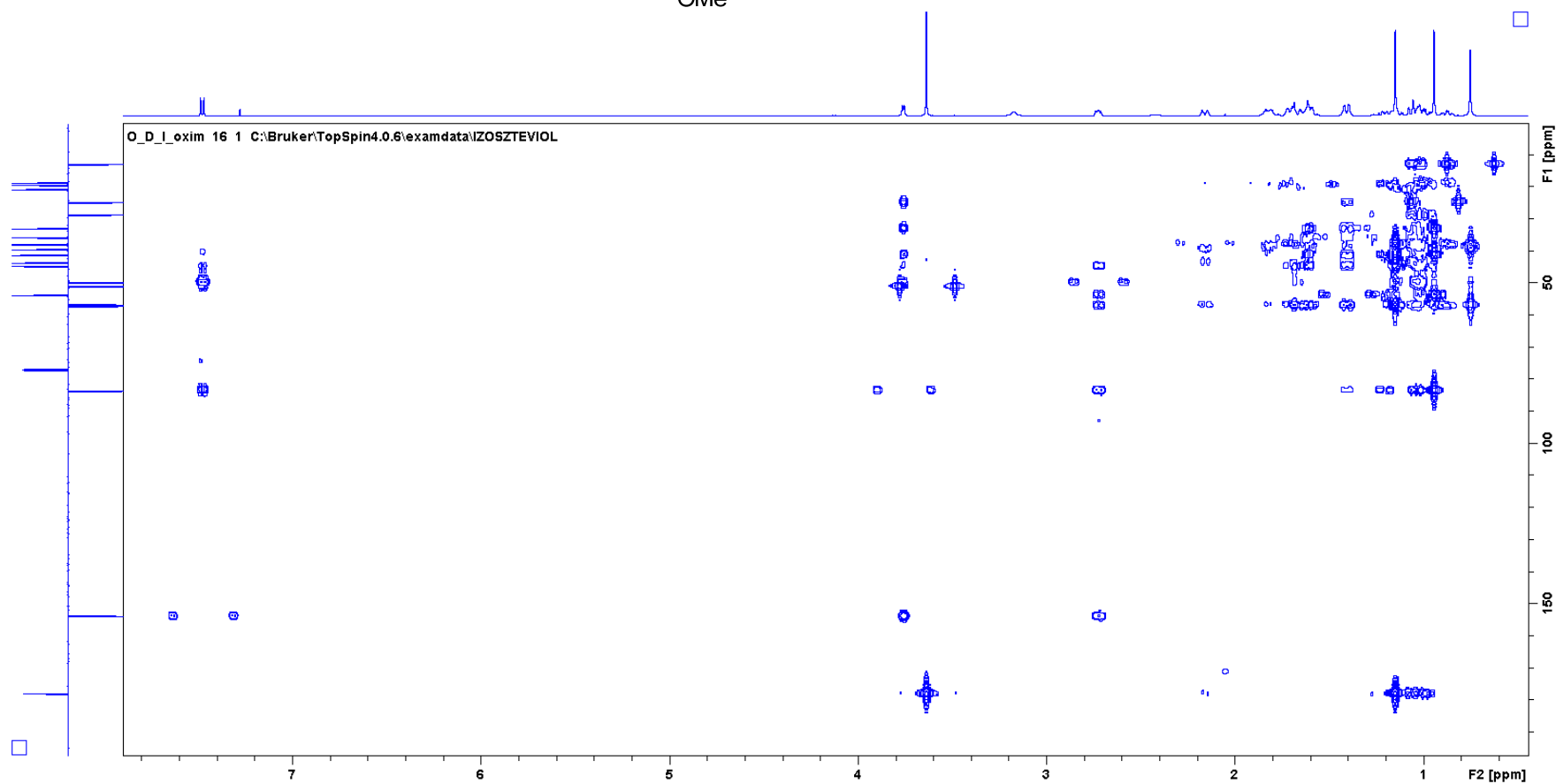
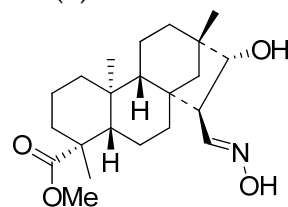
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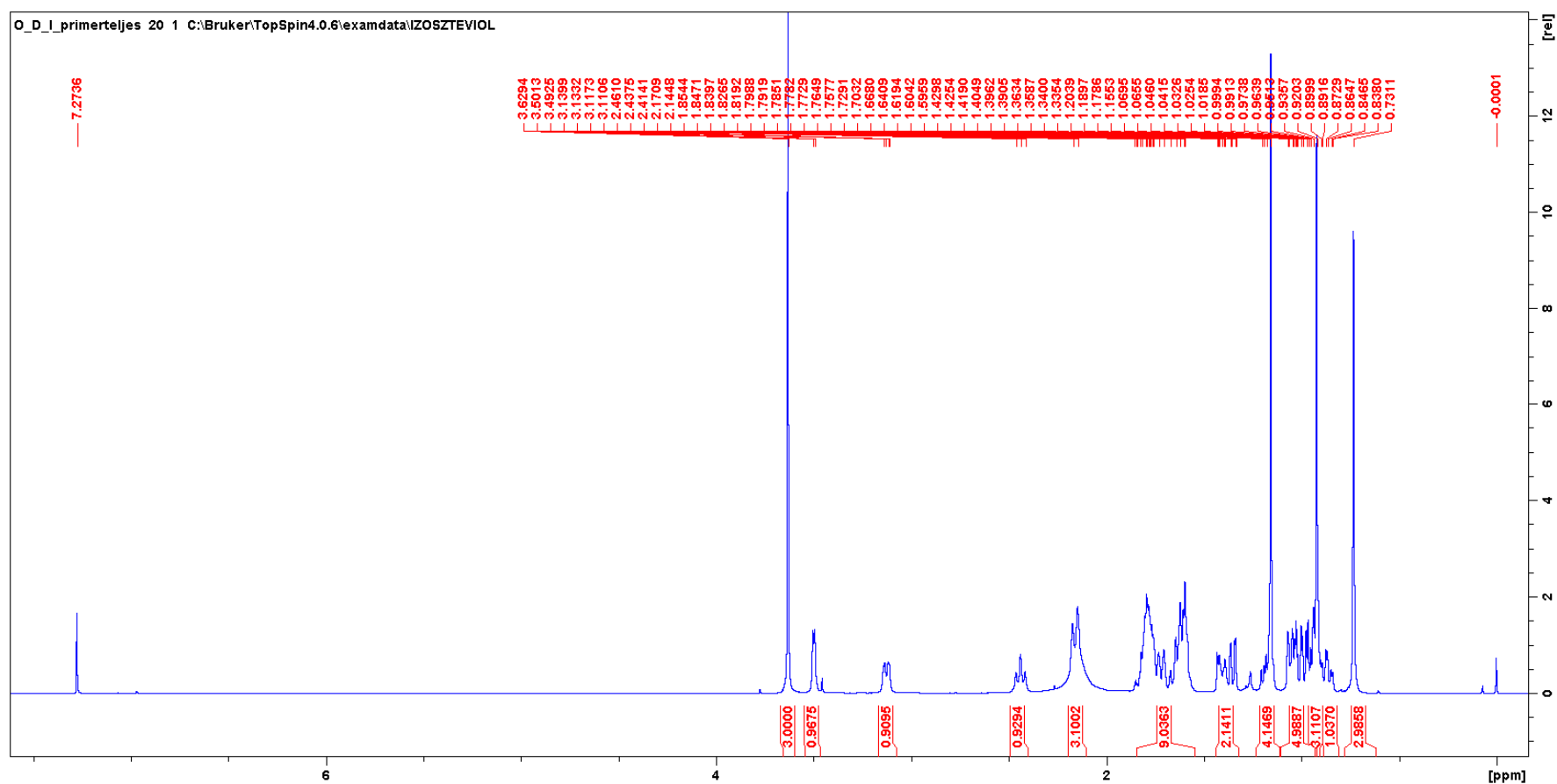
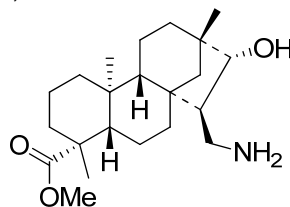
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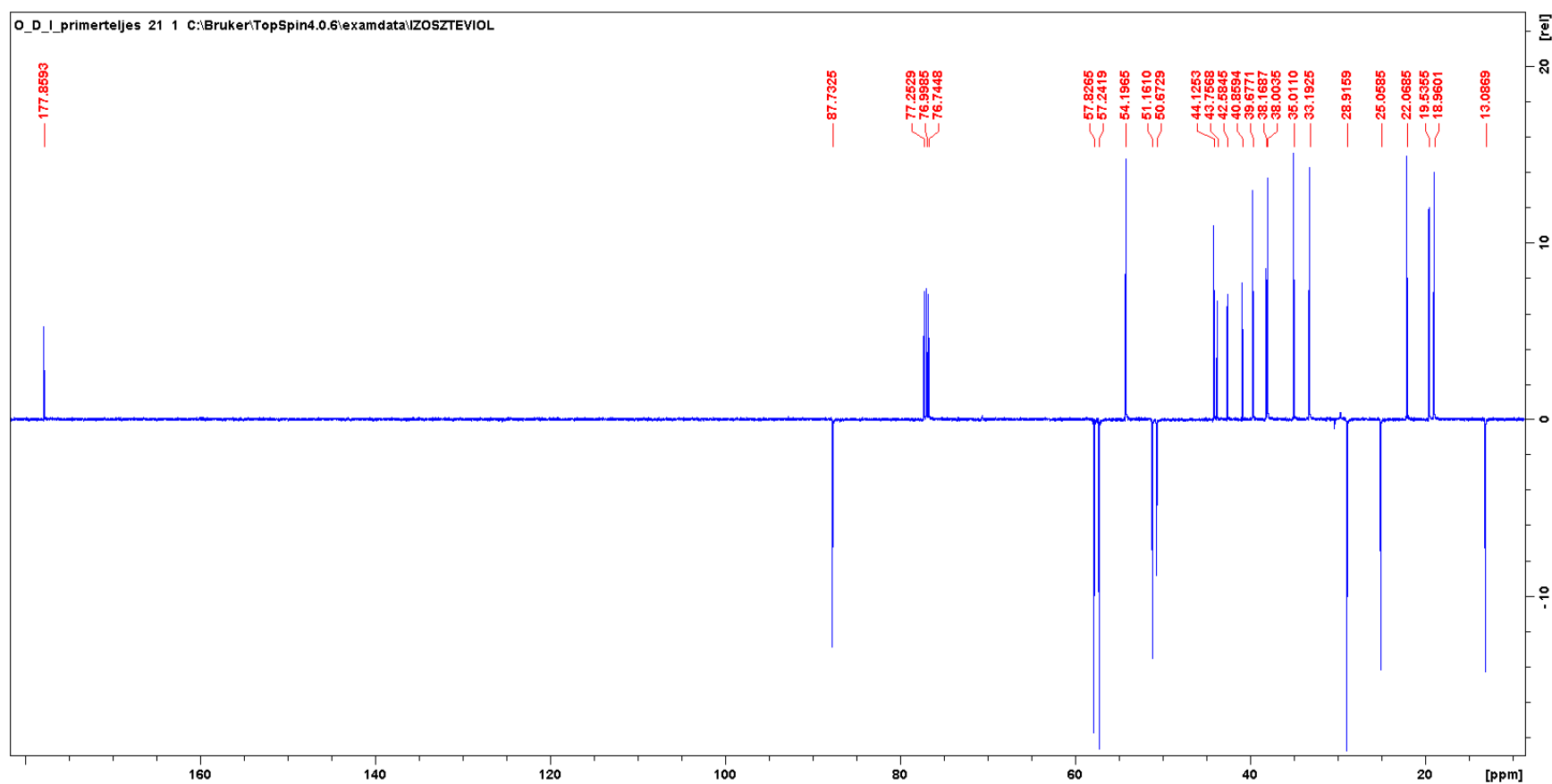
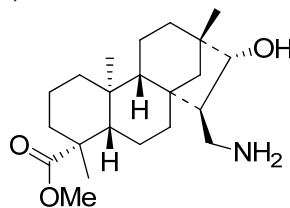
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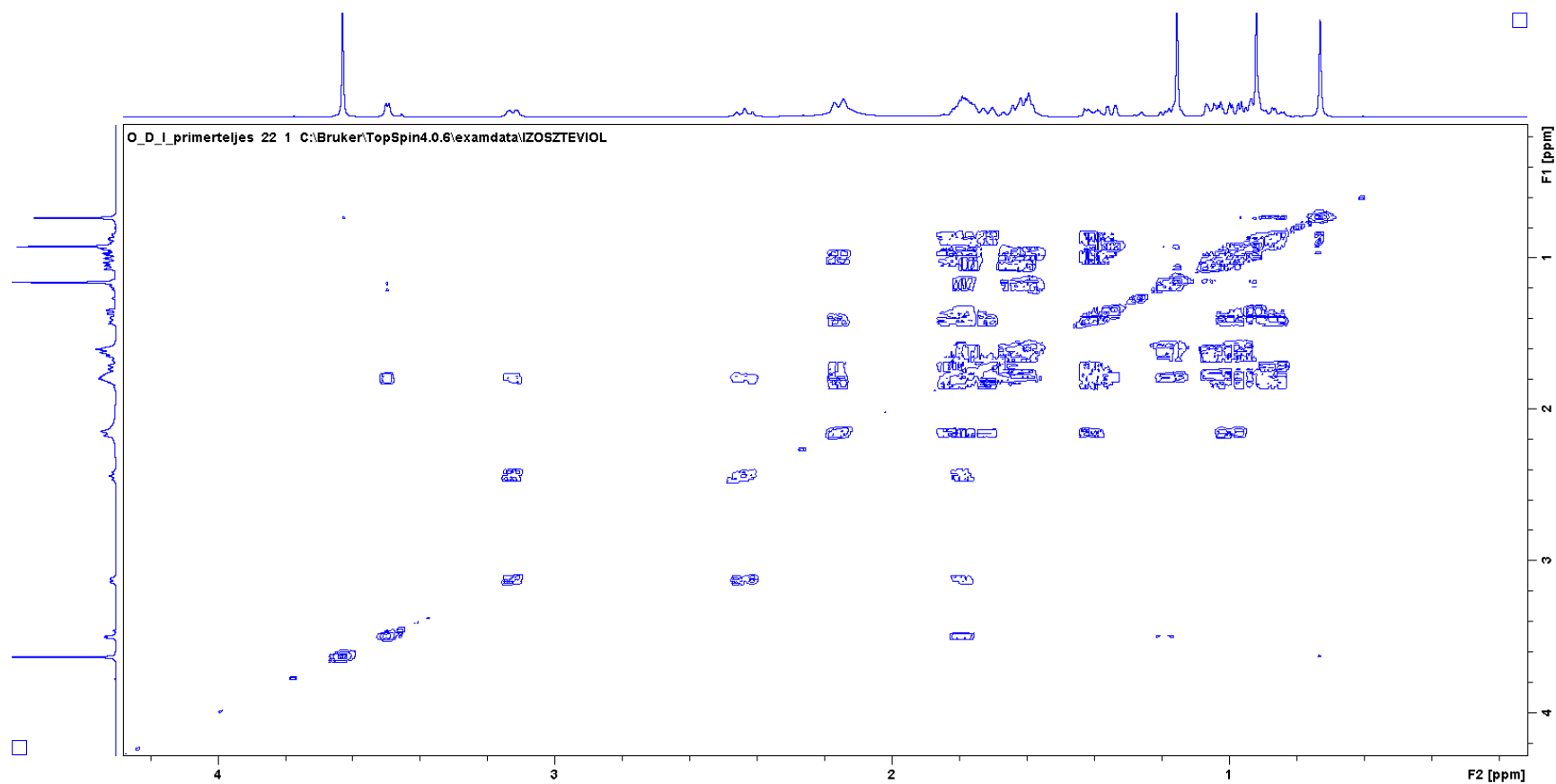
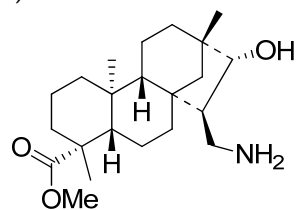
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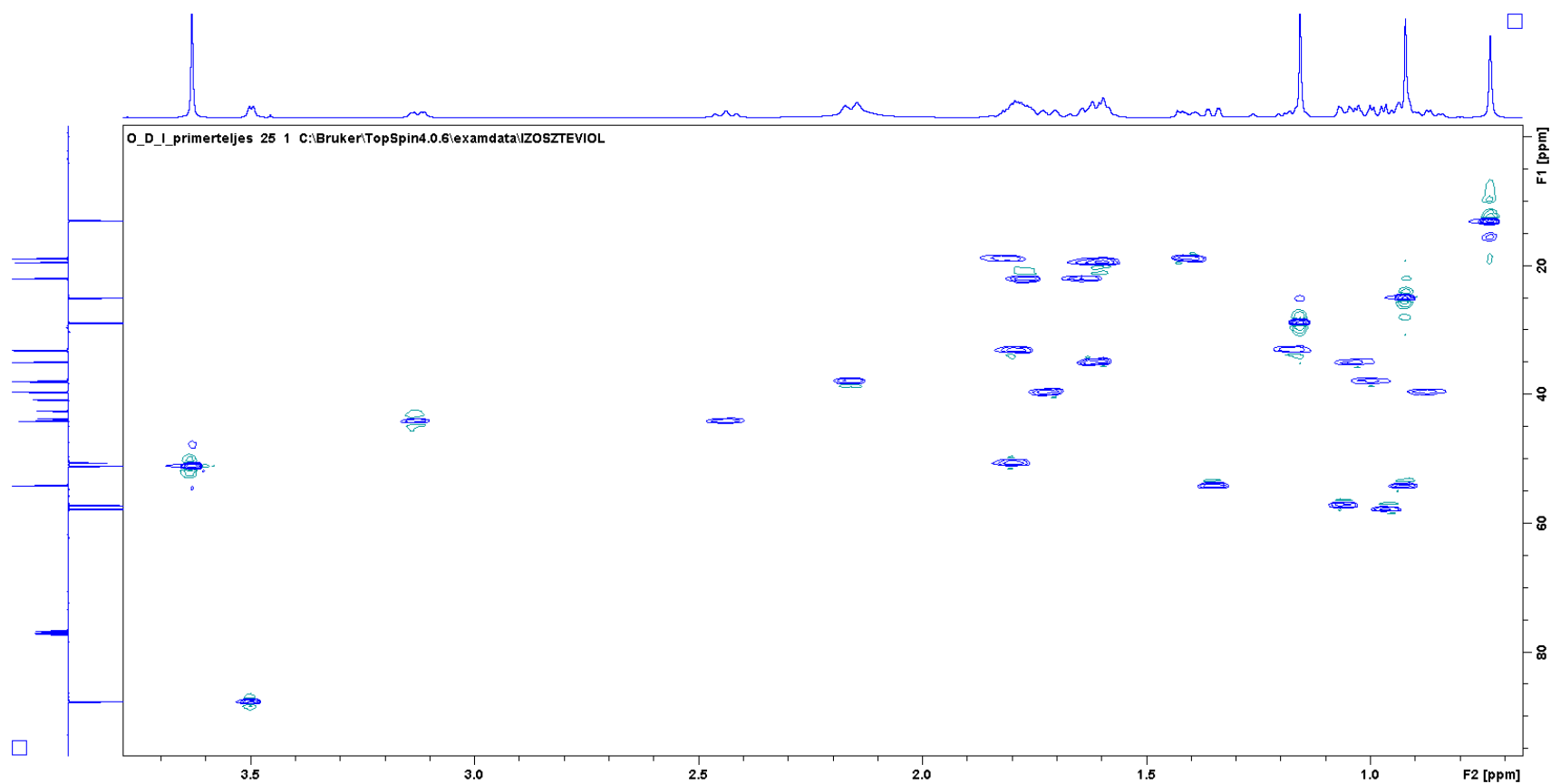
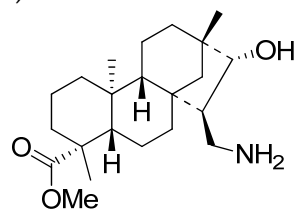
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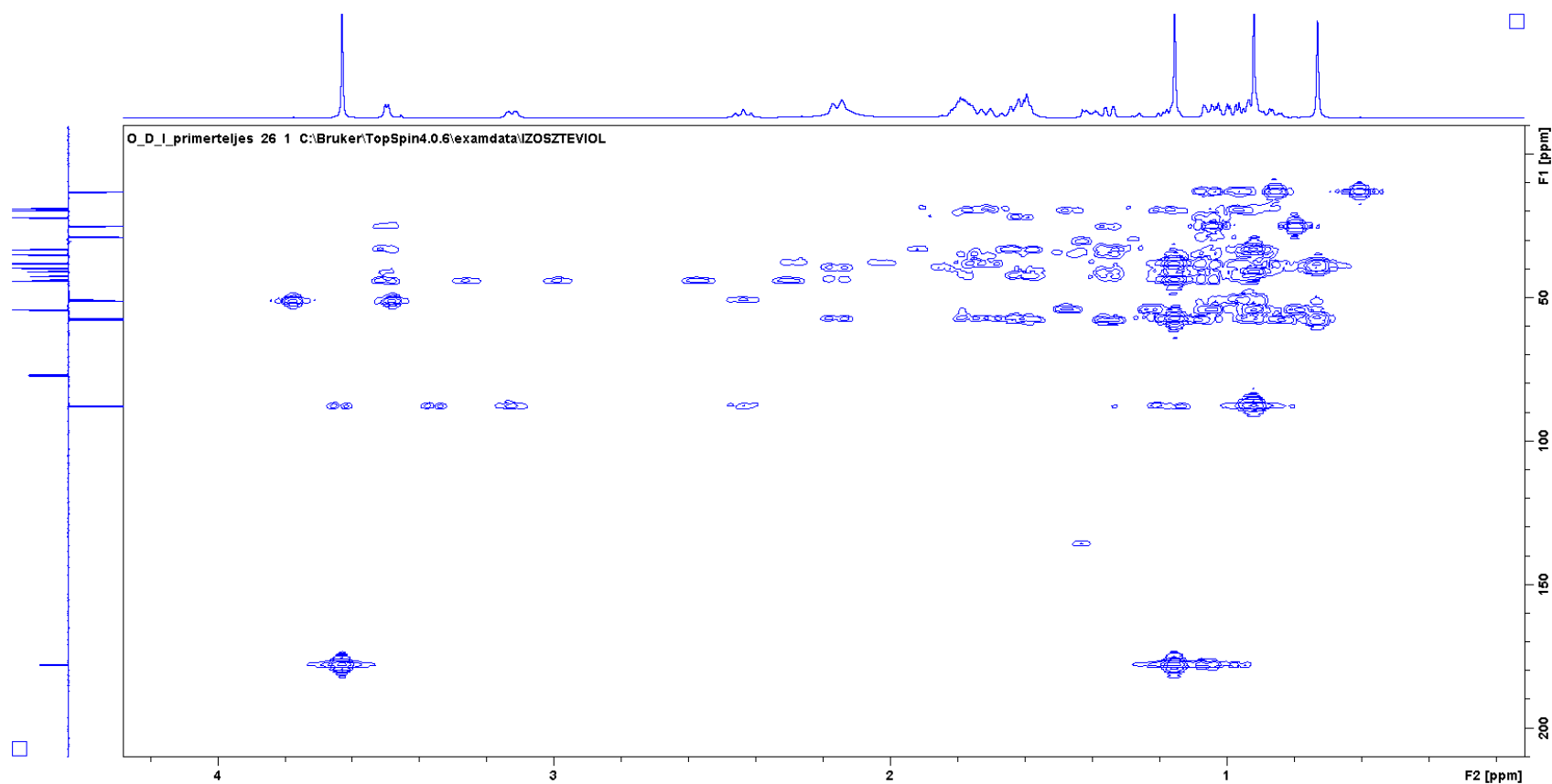
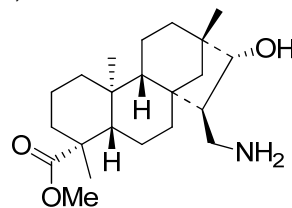
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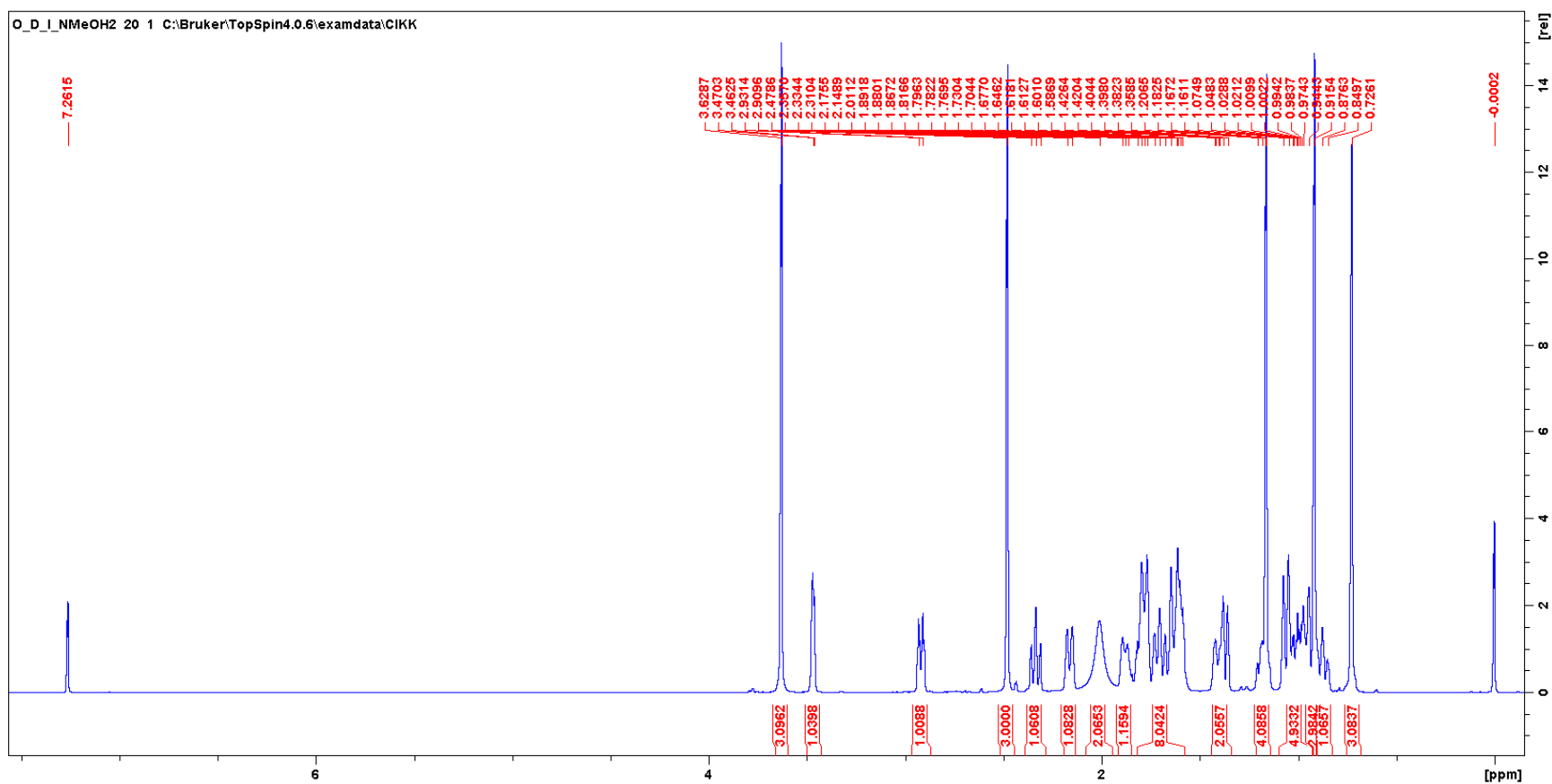
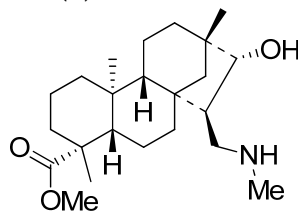
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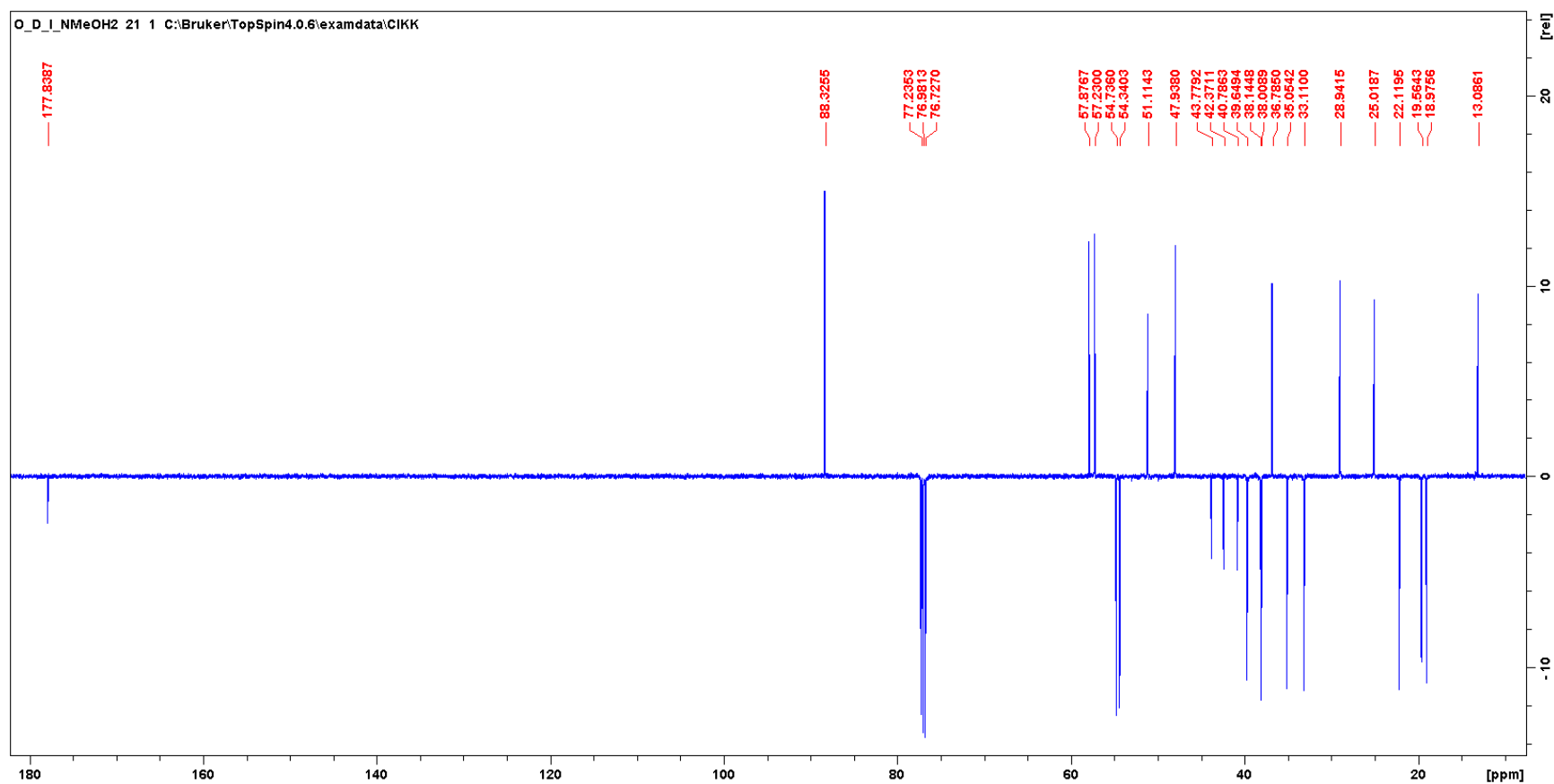
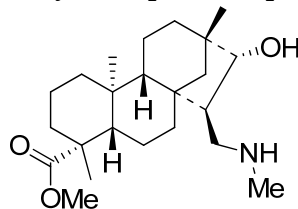
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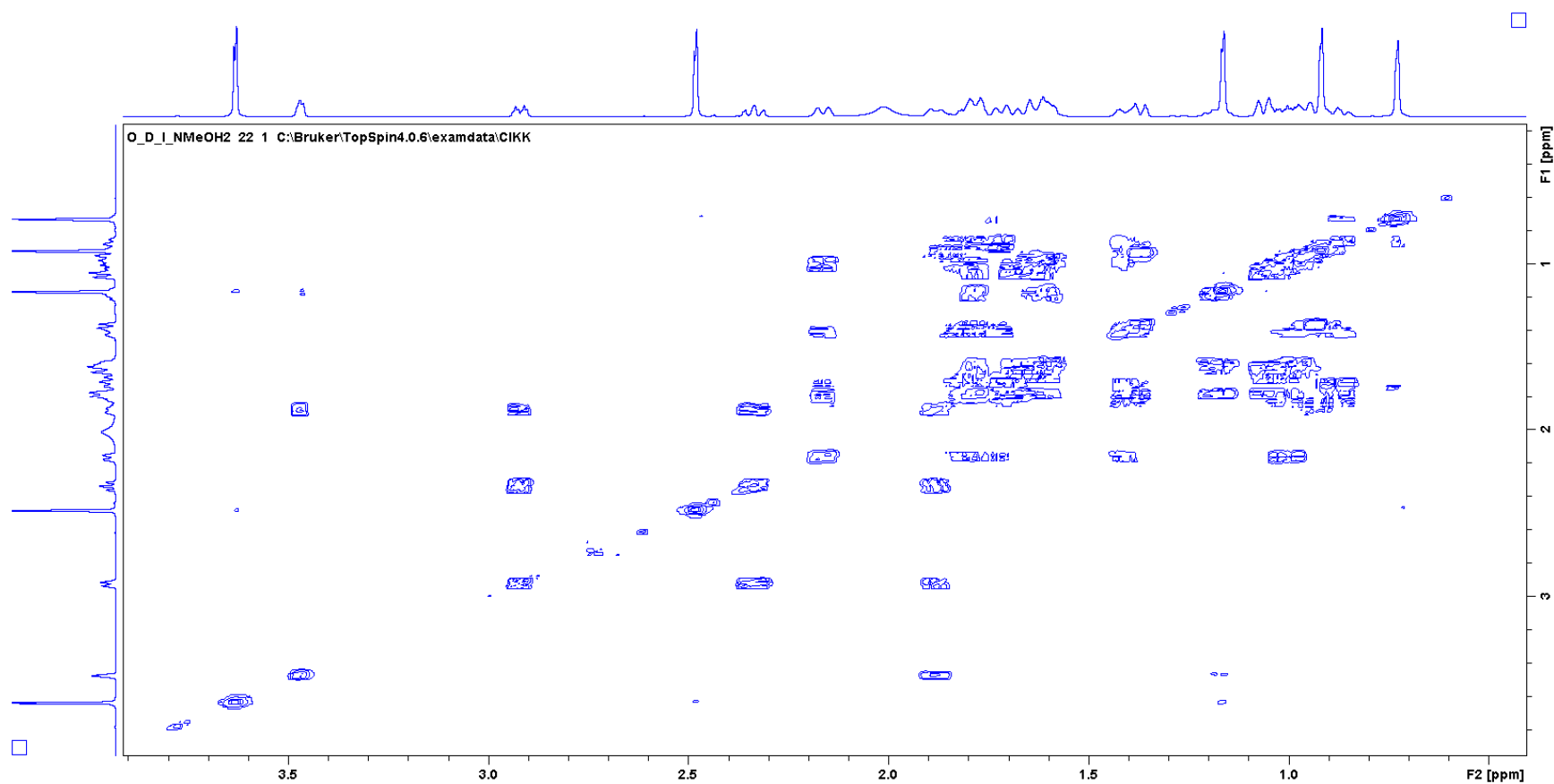
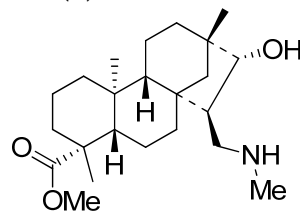
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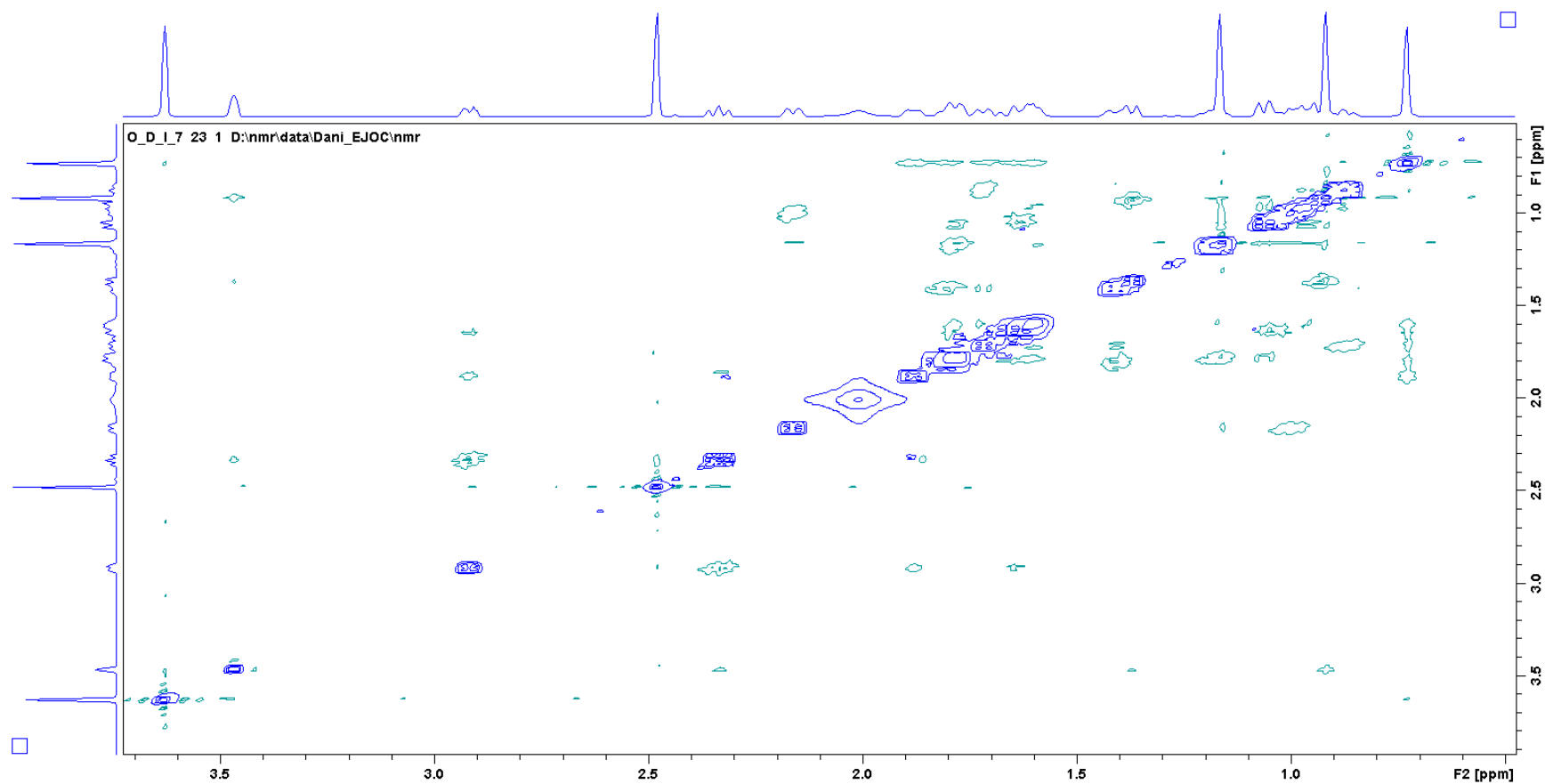
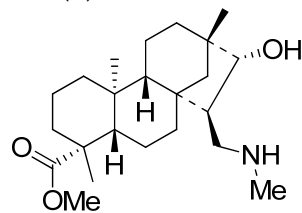
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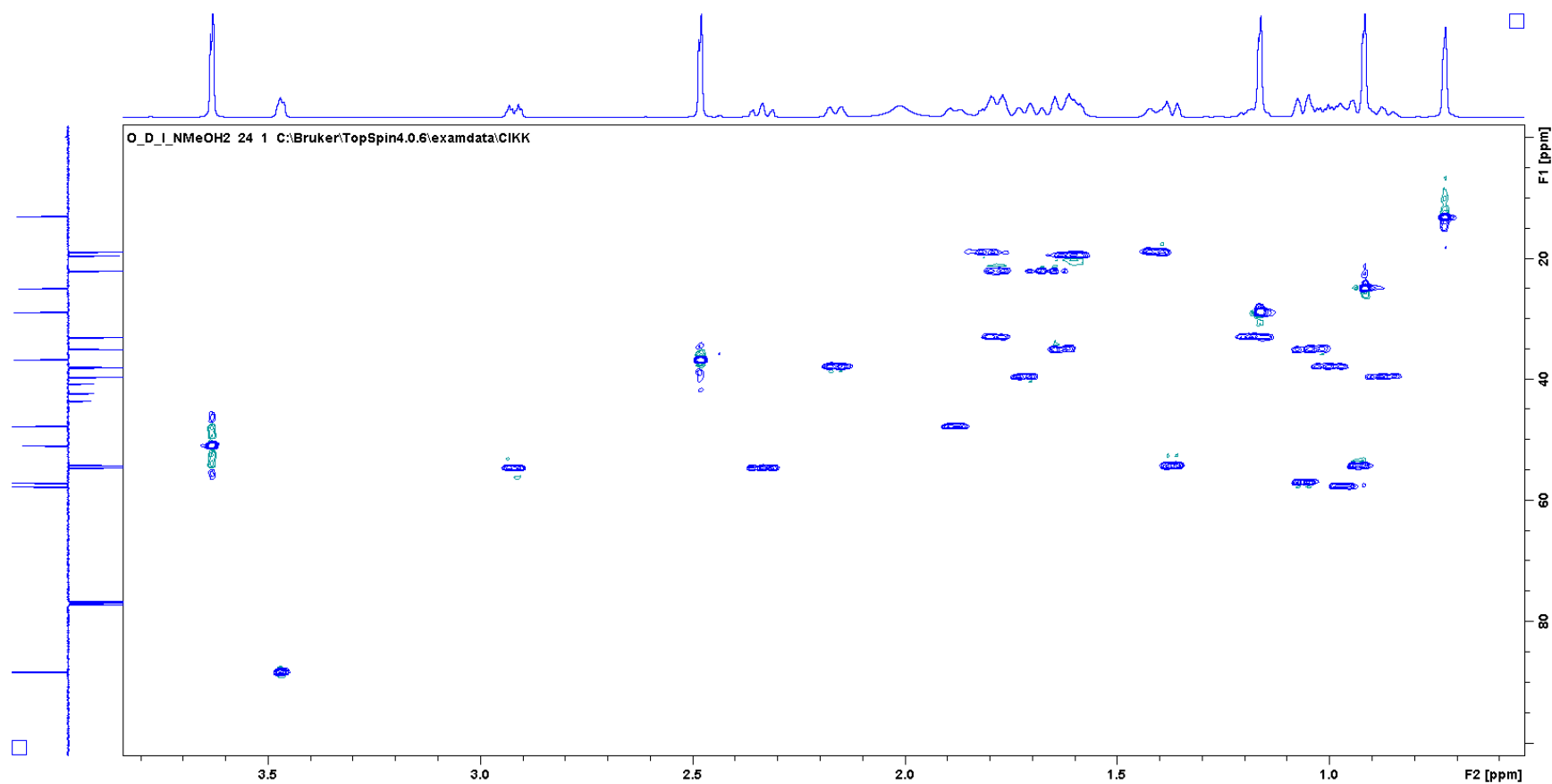
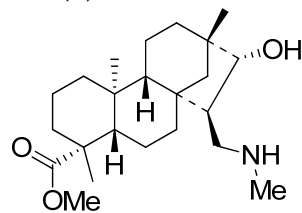
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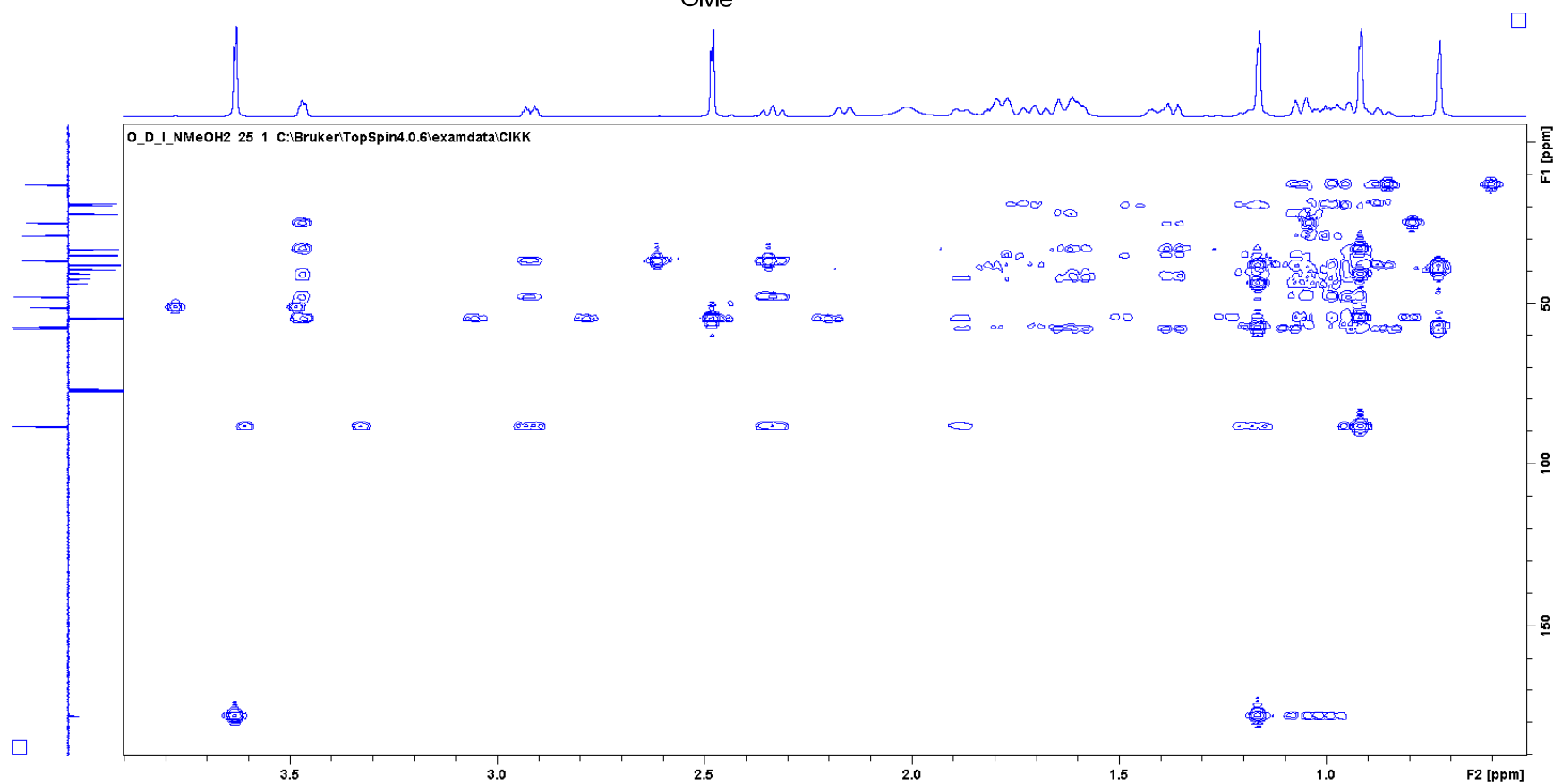
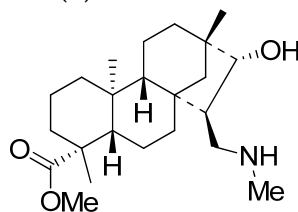
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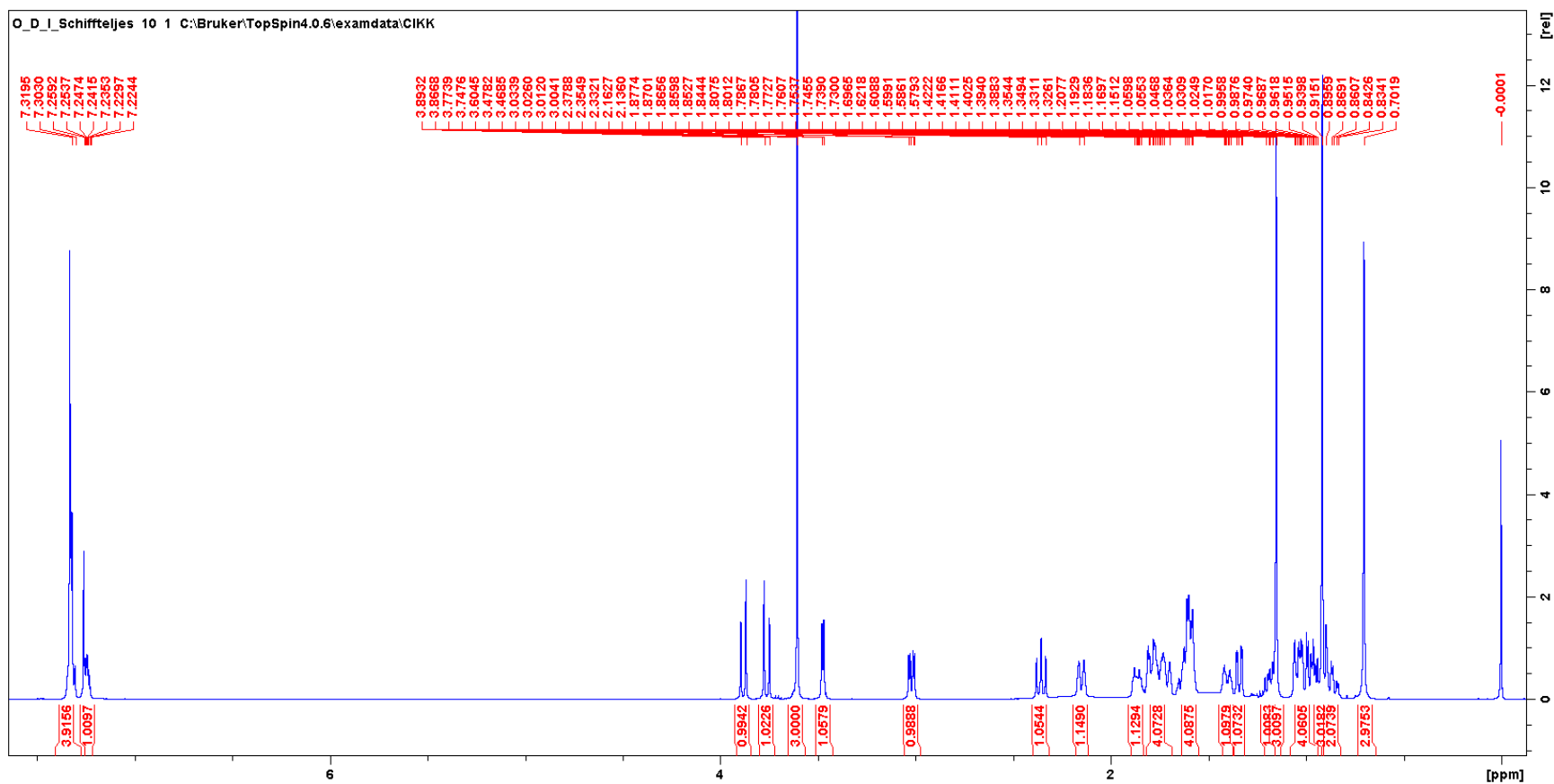
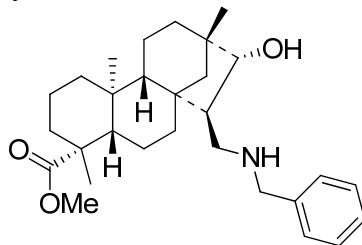
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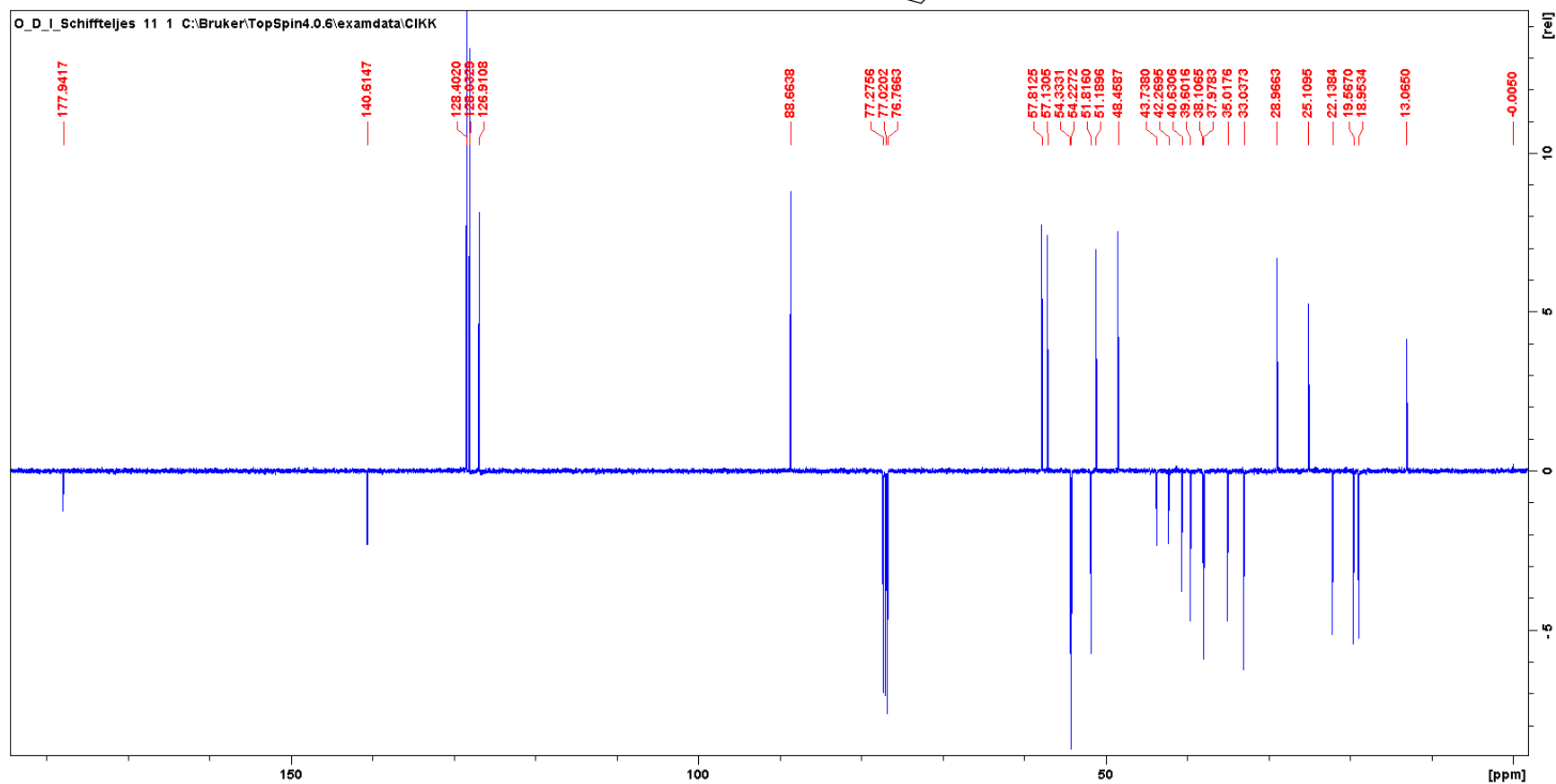
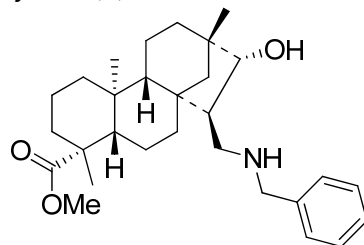
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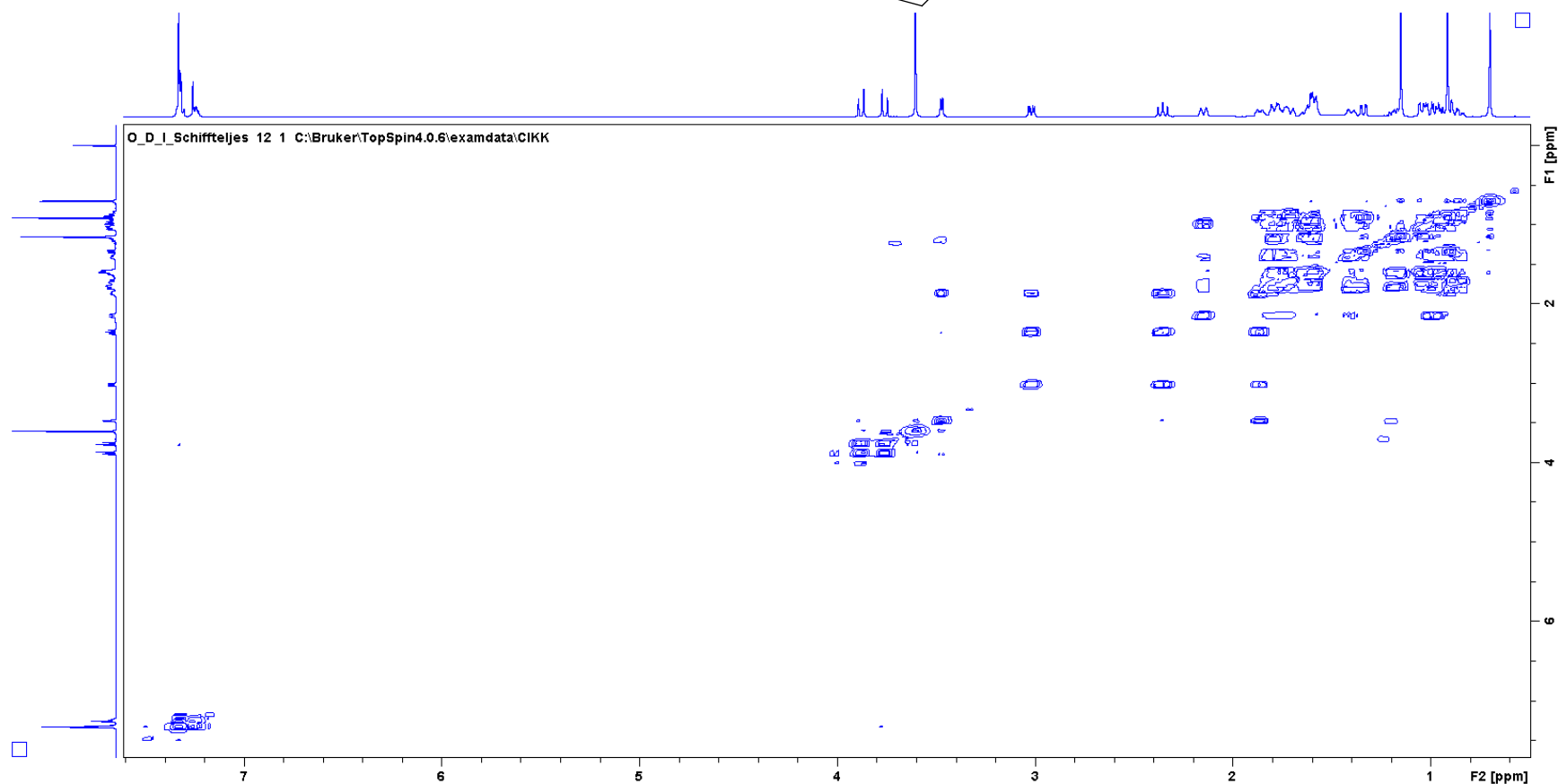
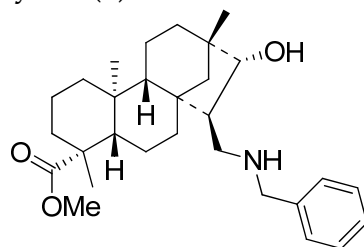
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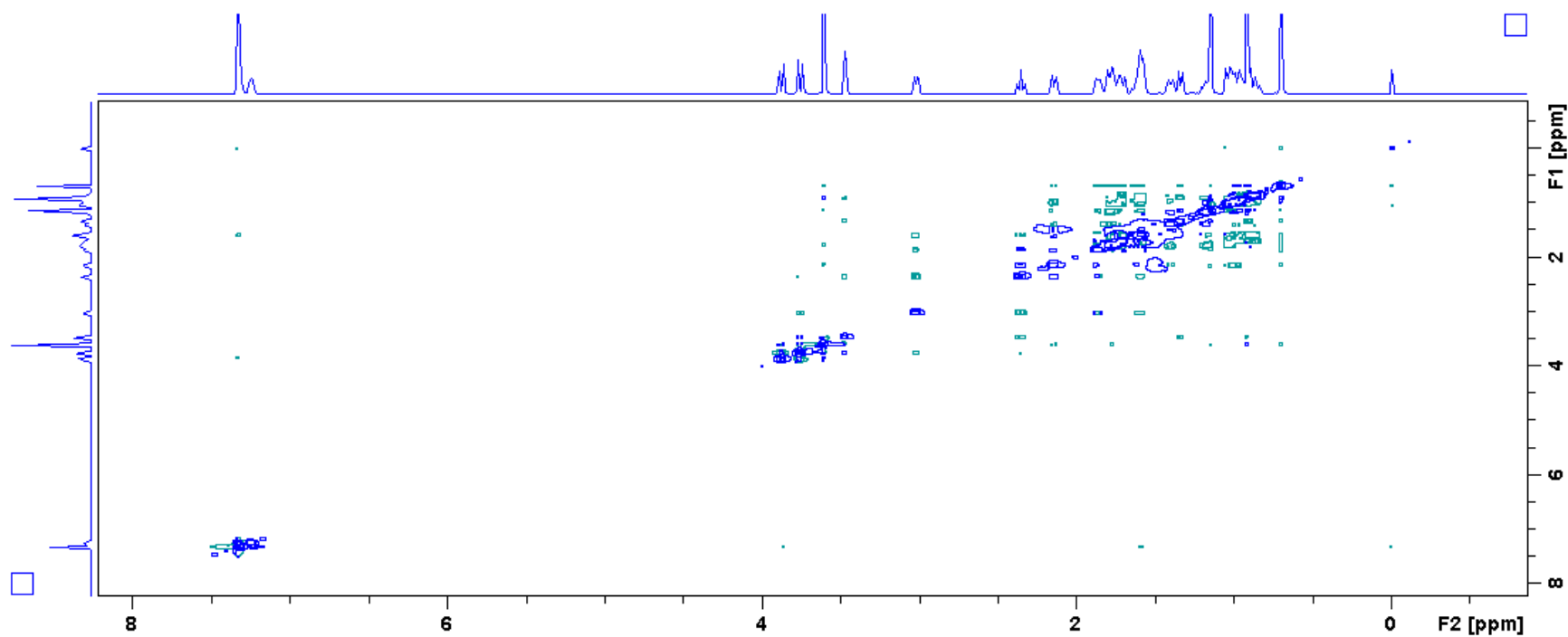
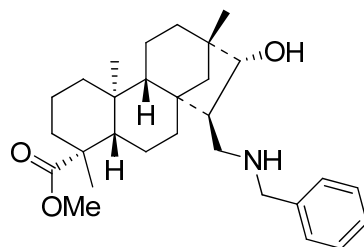
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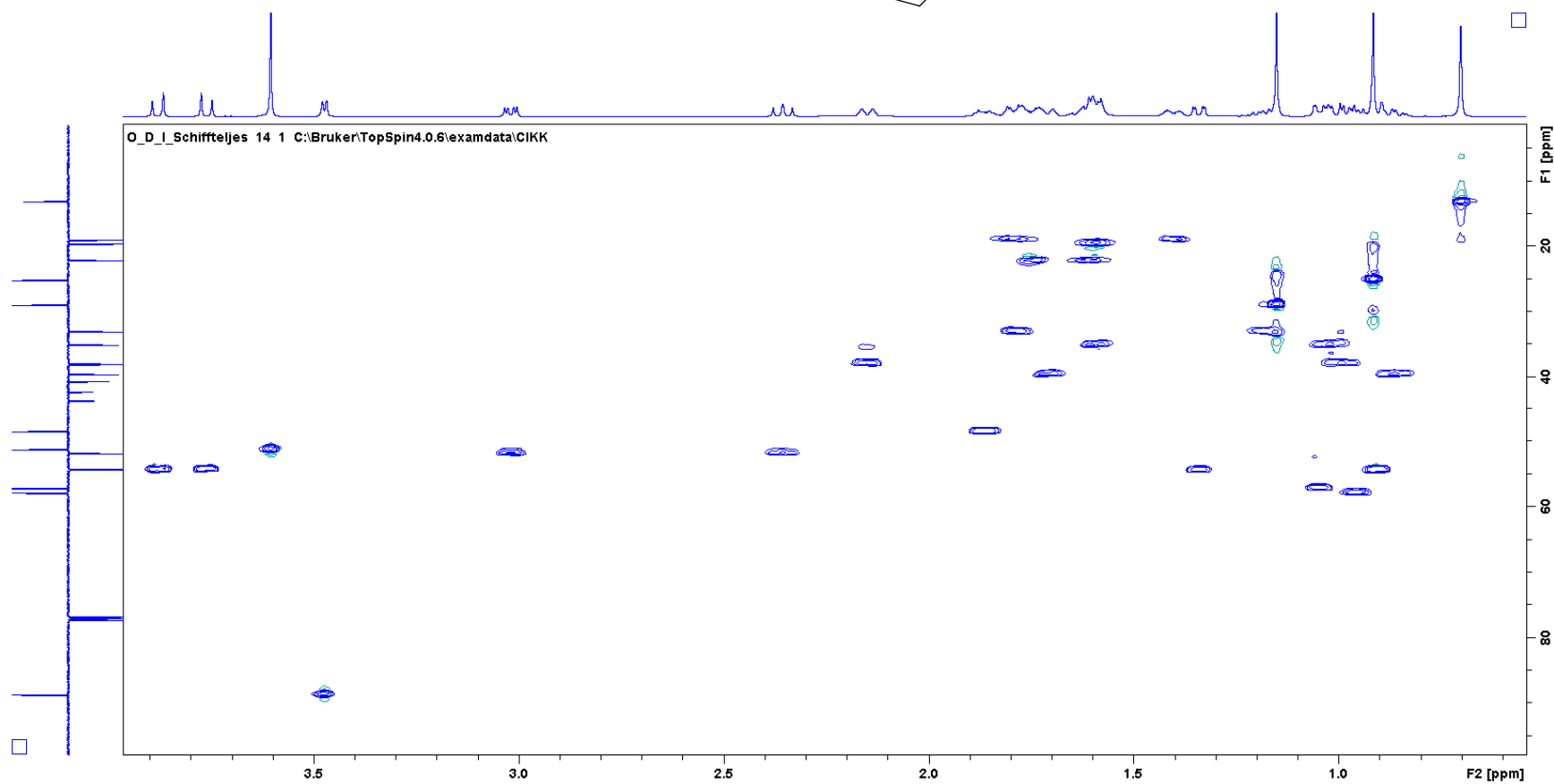
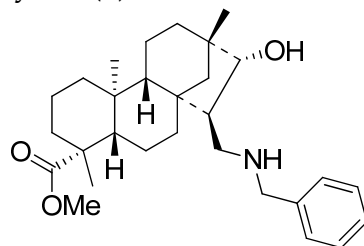
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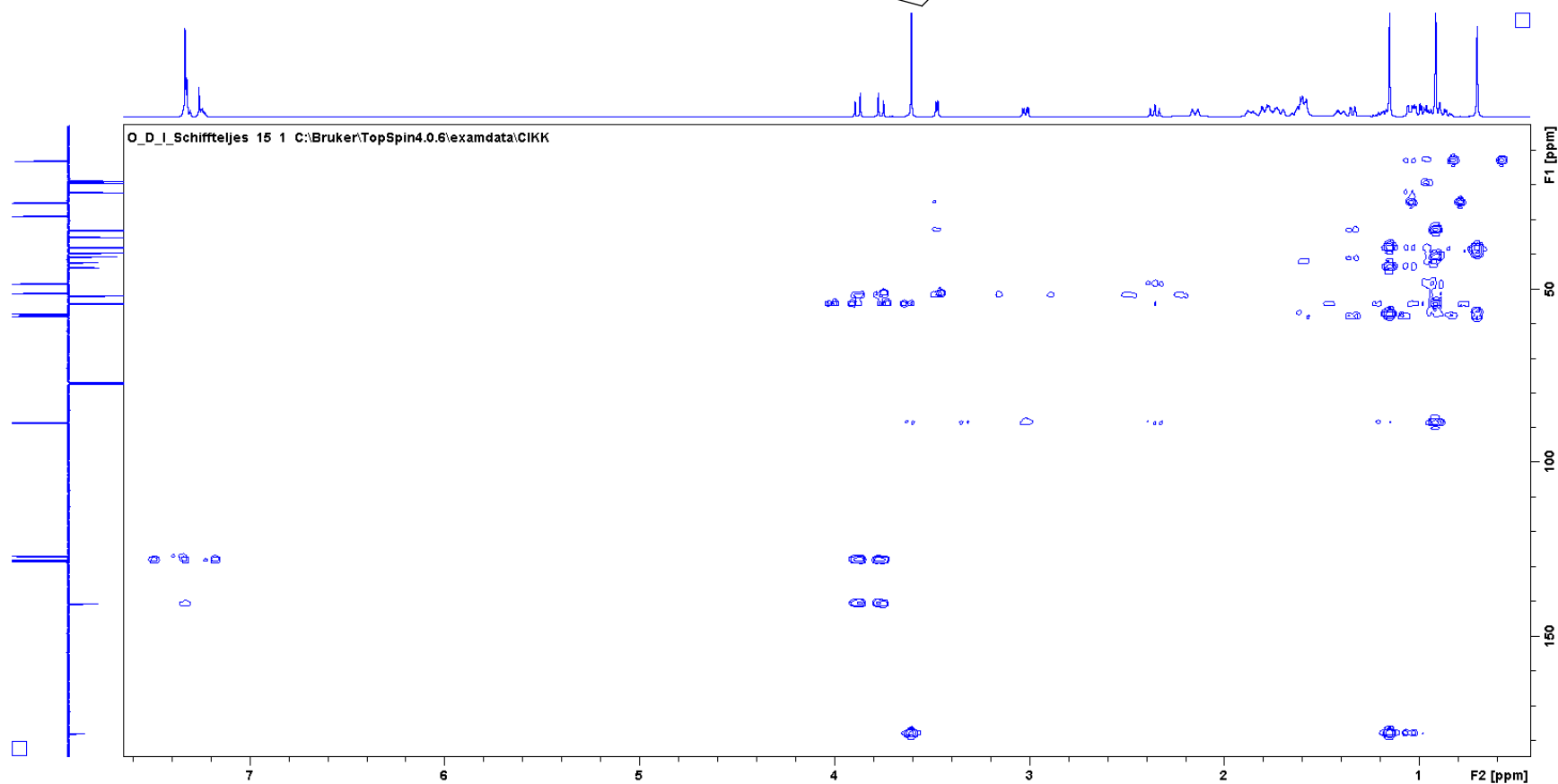
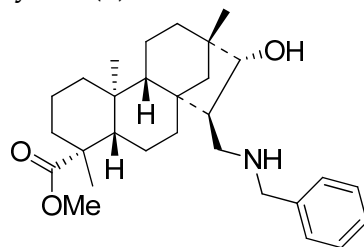
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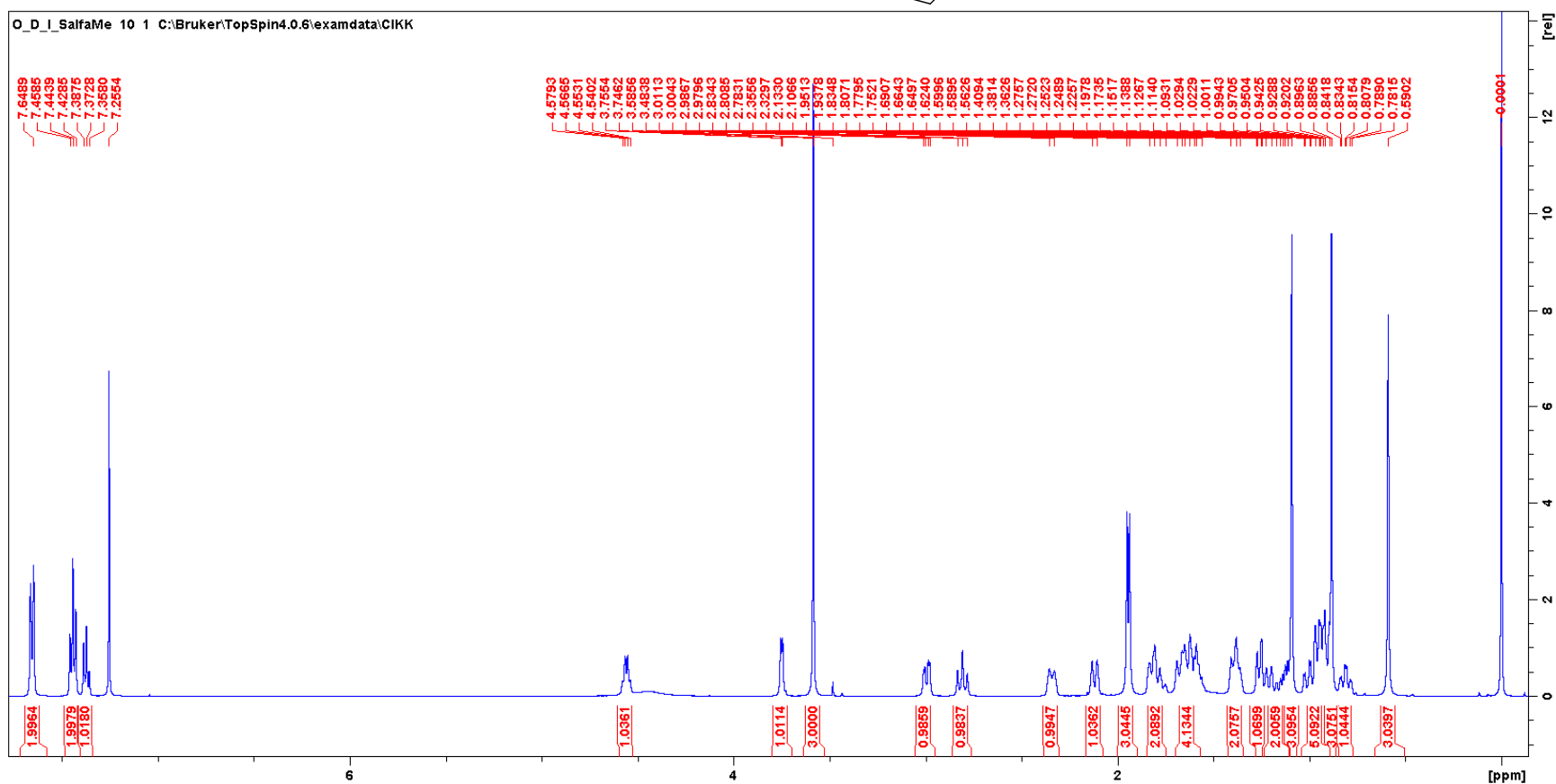
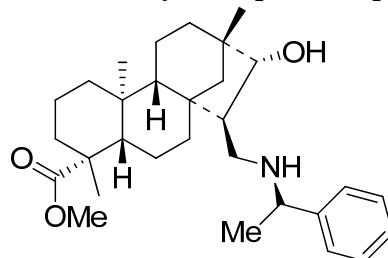
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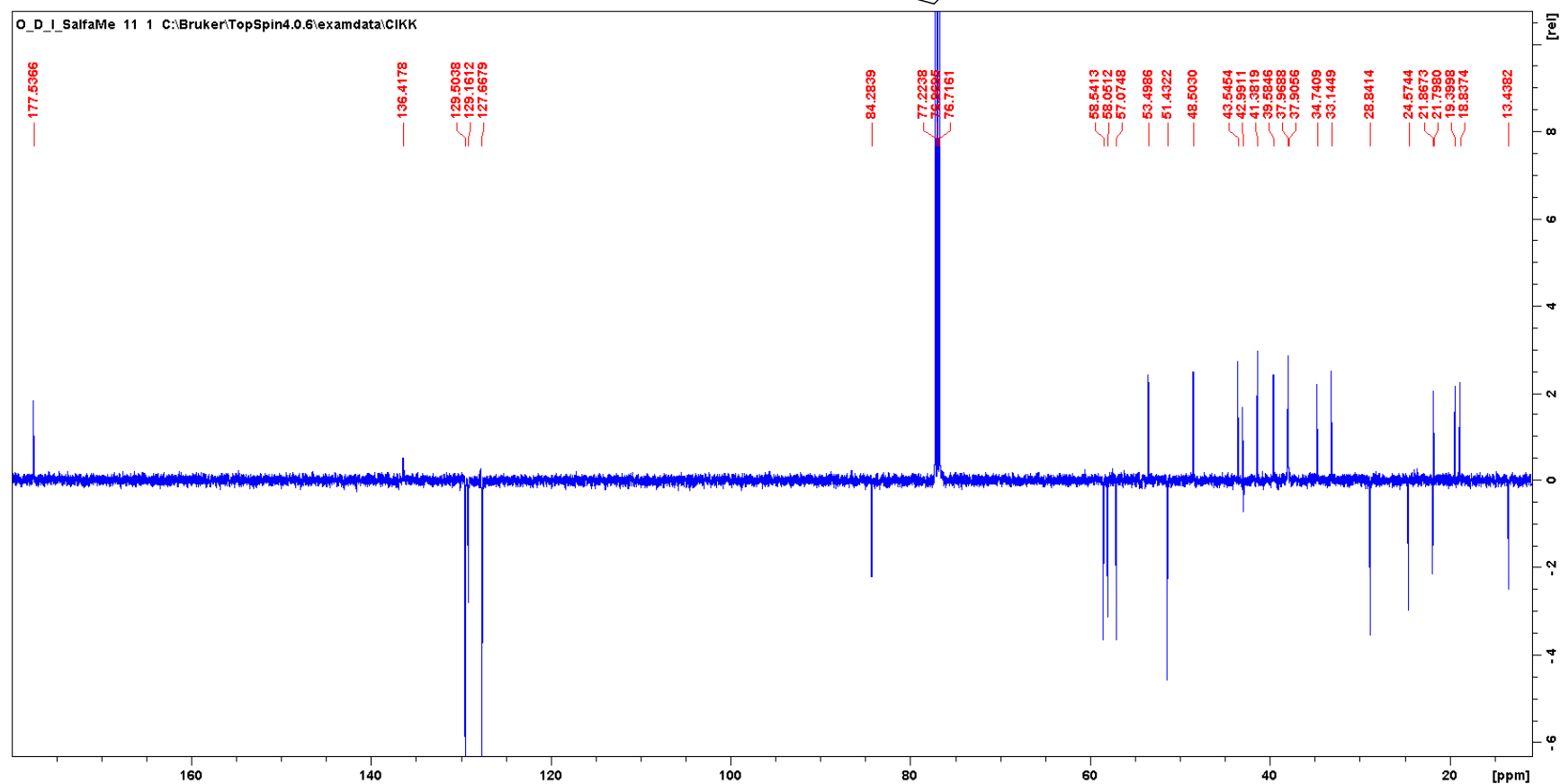
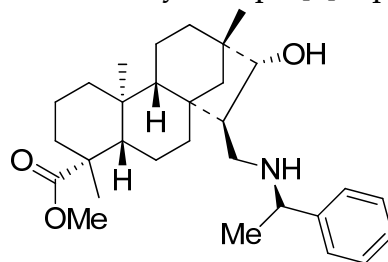
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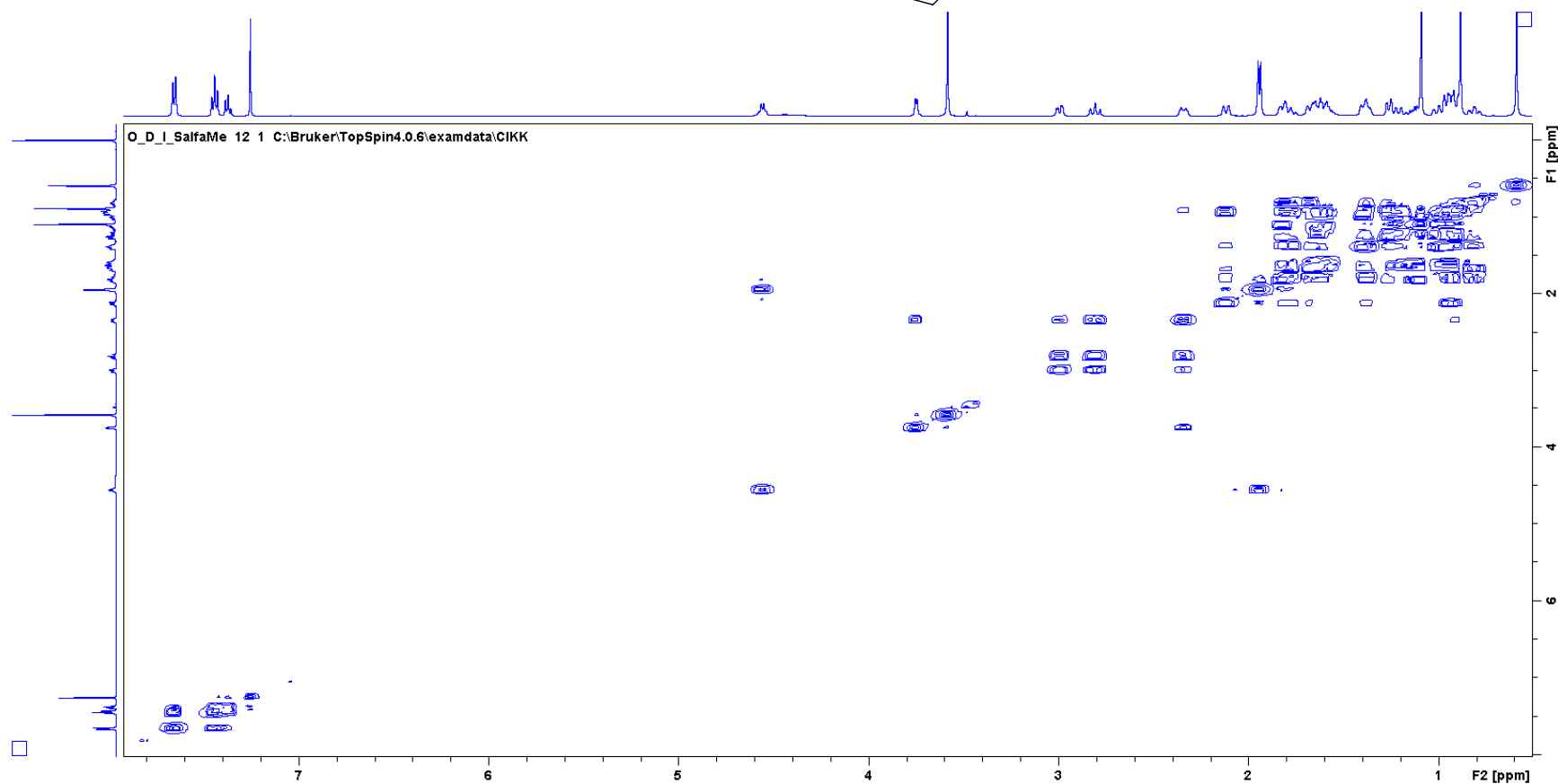
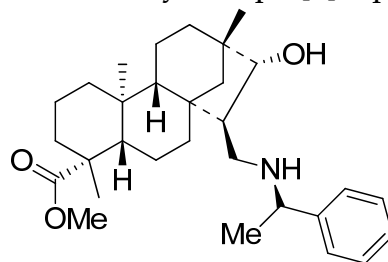
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*S*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**9**)



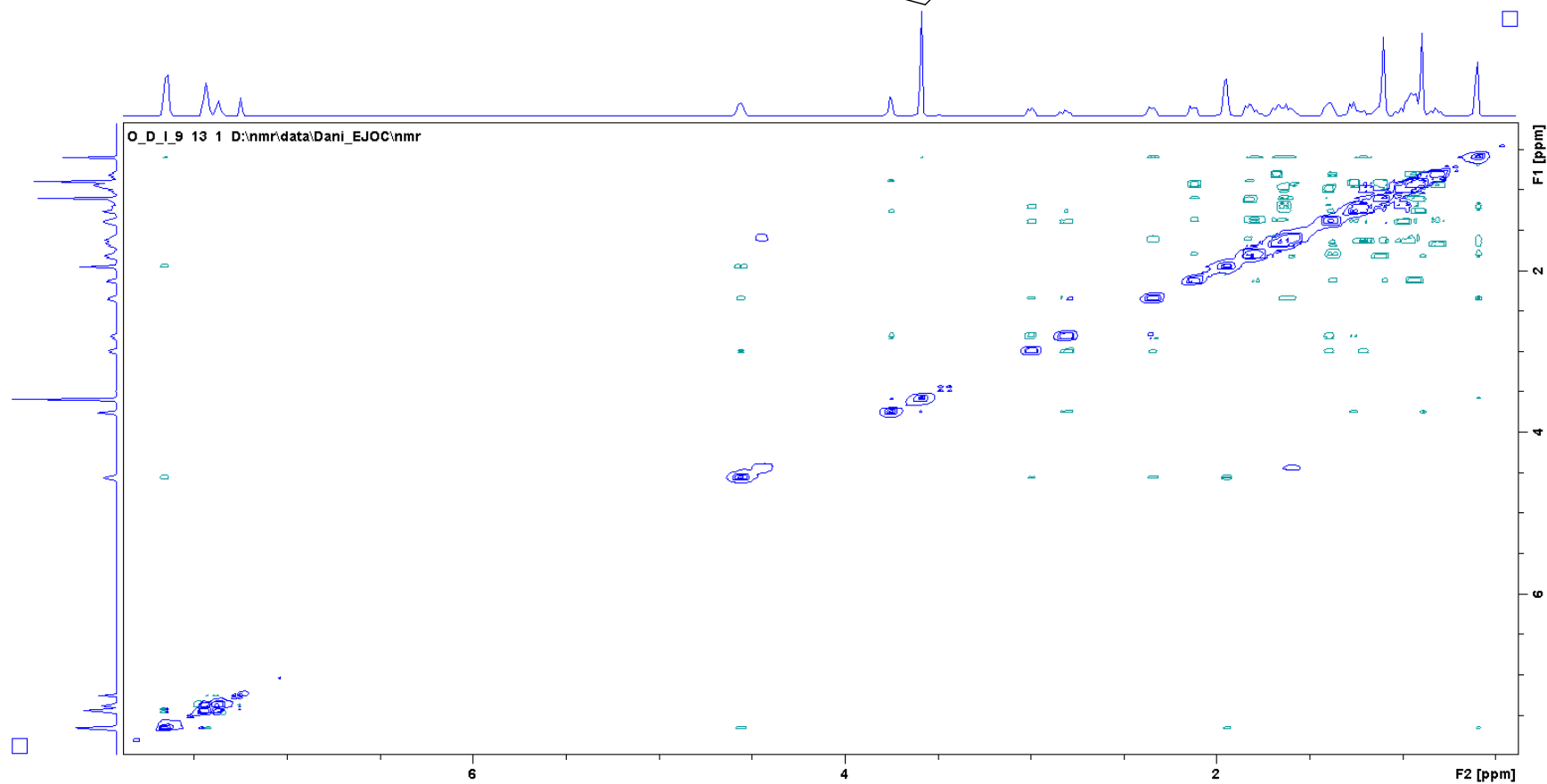
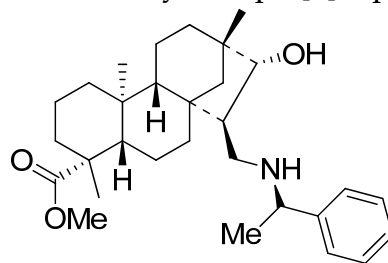
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*S*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**9**)



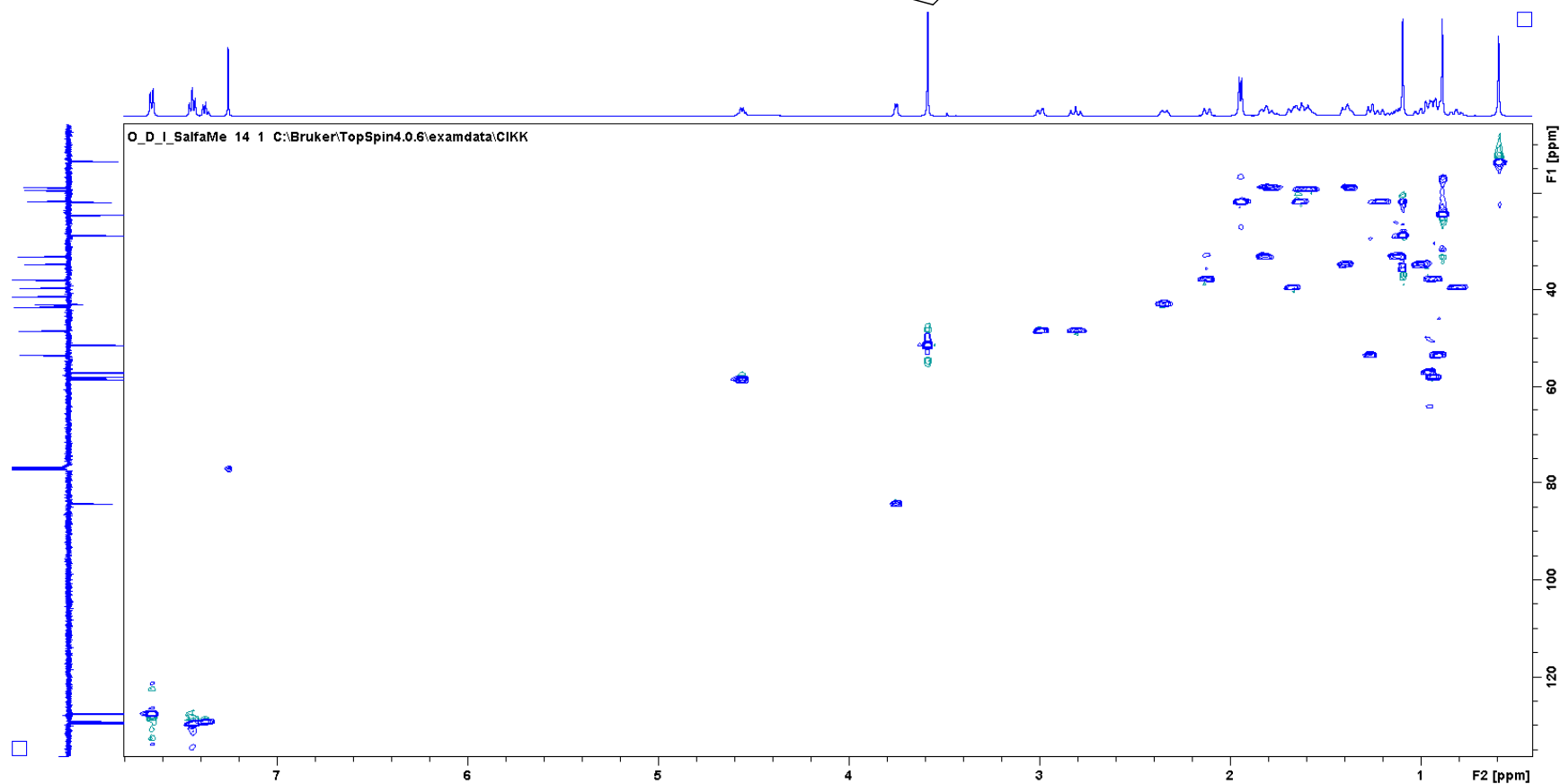
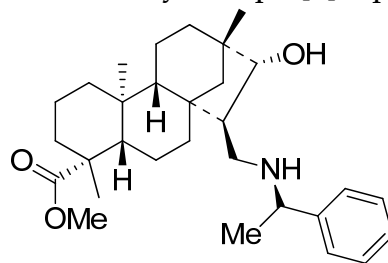
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*S*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**9**)



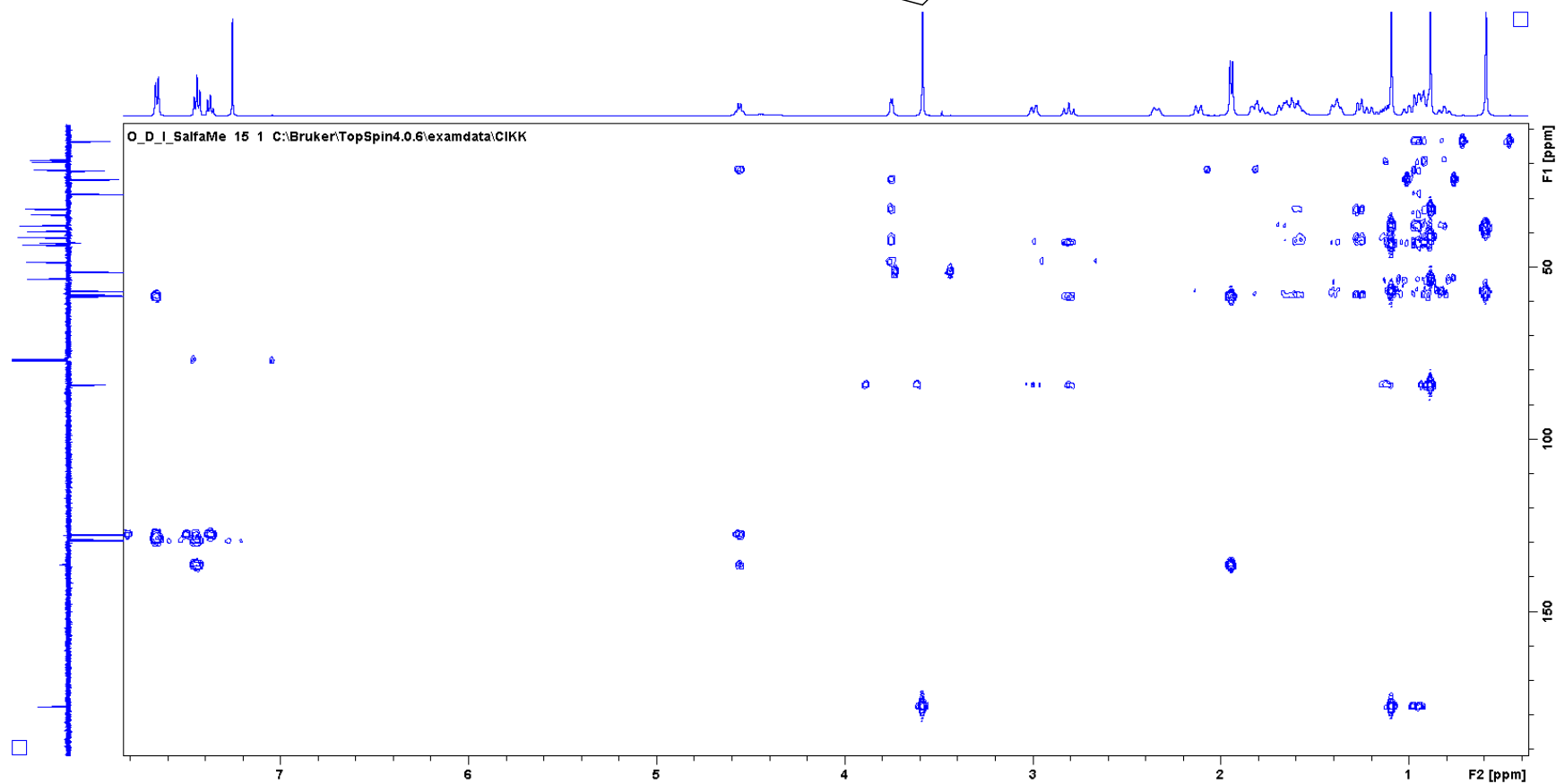
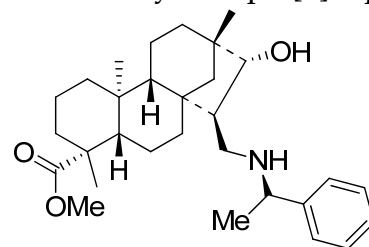
NOESY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((*S*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**9**)



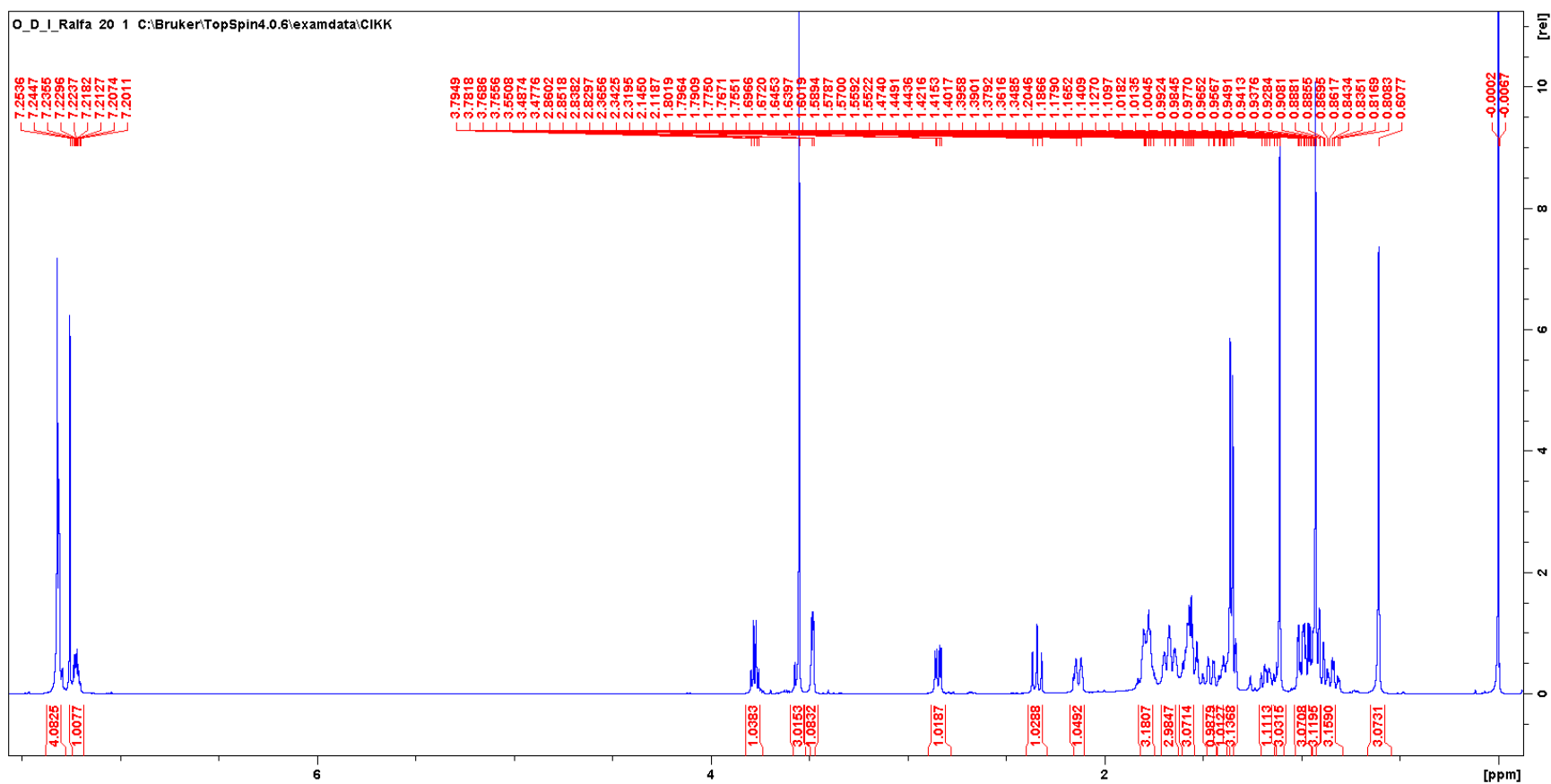
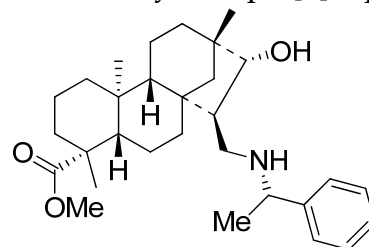
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*S*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**9**)



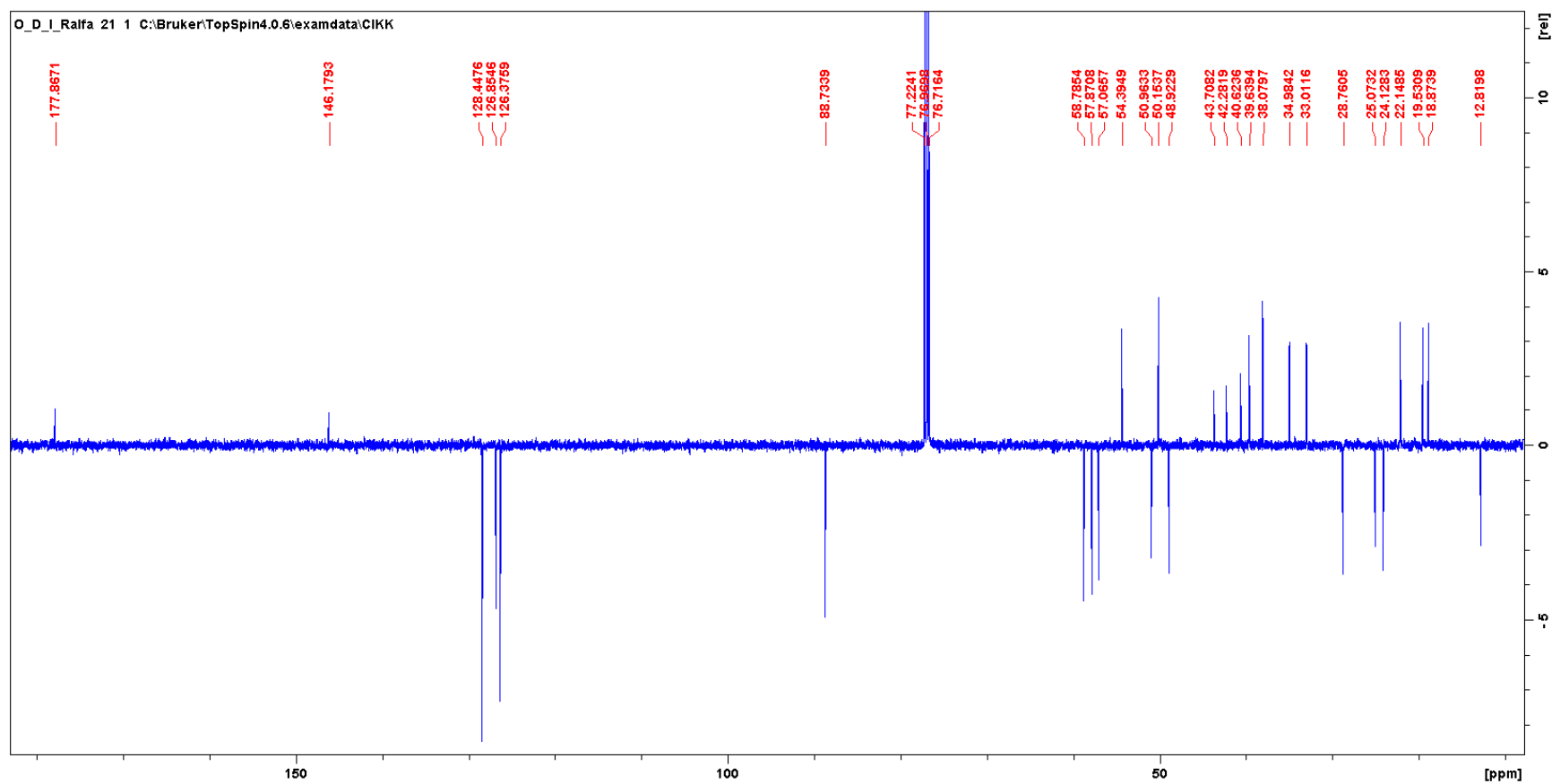
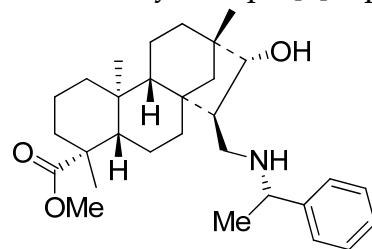
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*S*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (9)



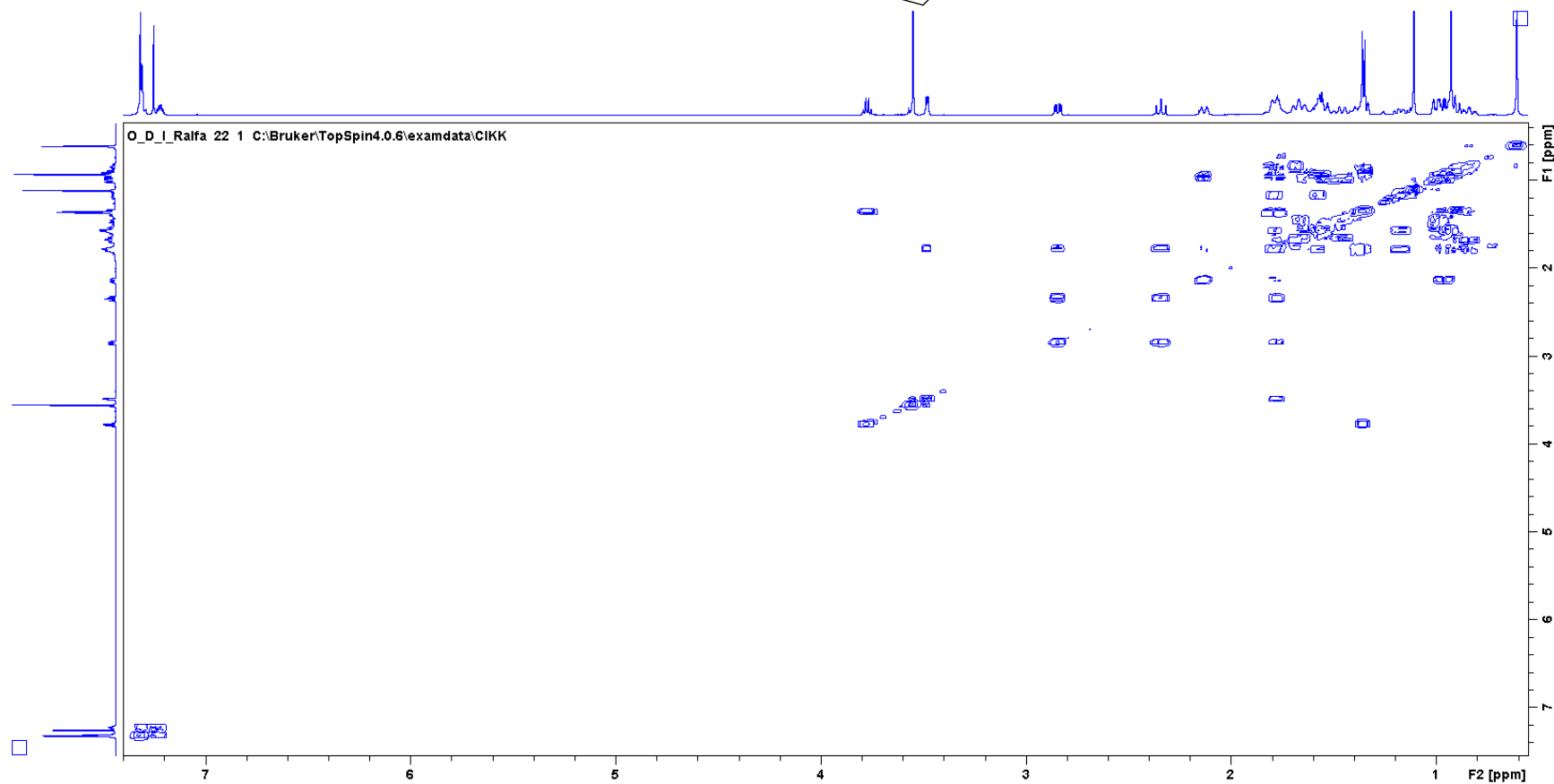
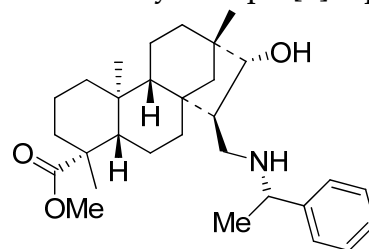
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*R*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**10**)



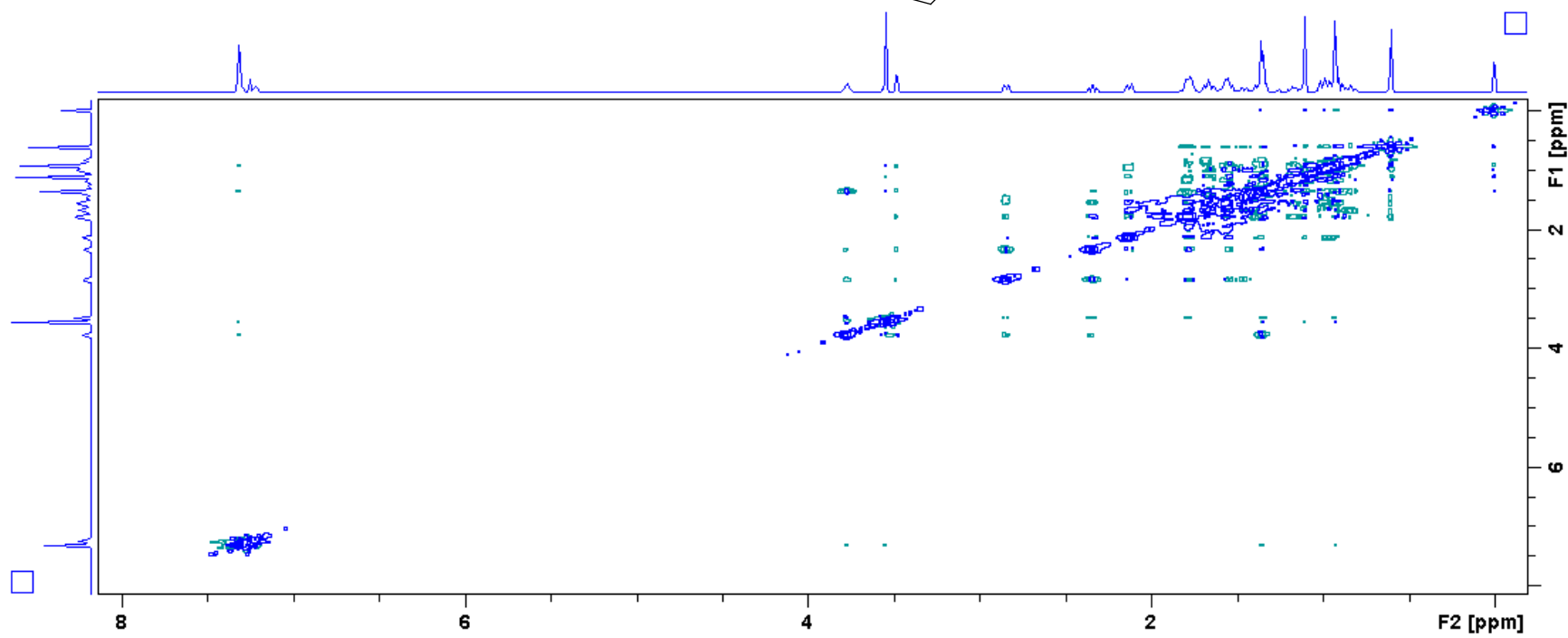
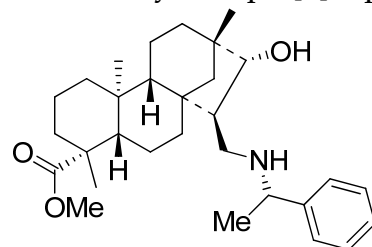
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*R*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**10**)



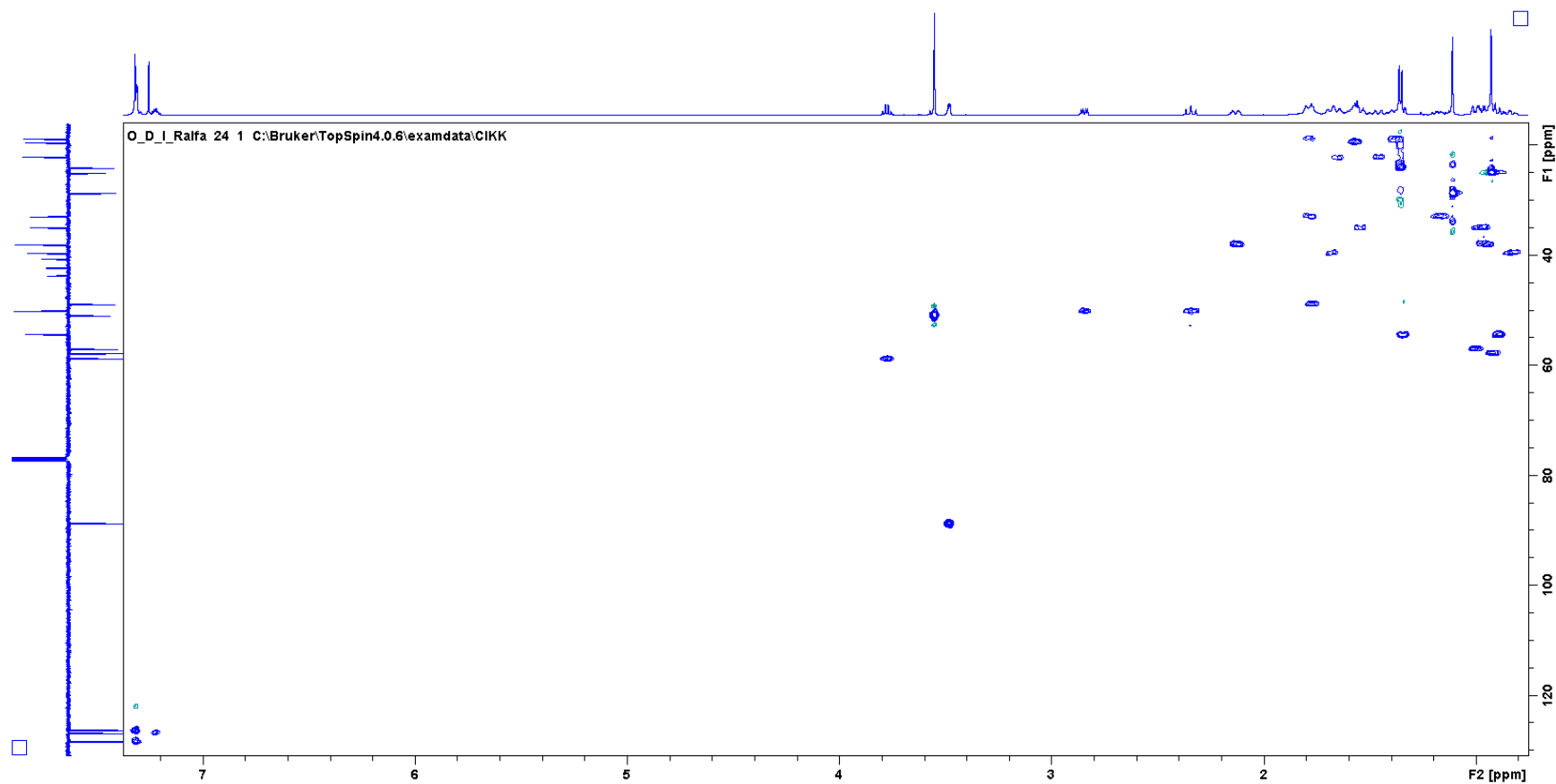
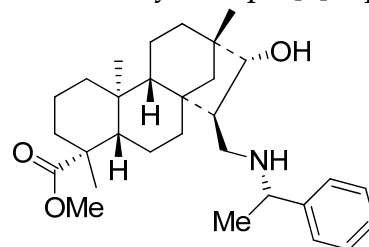
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*R*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**10**)



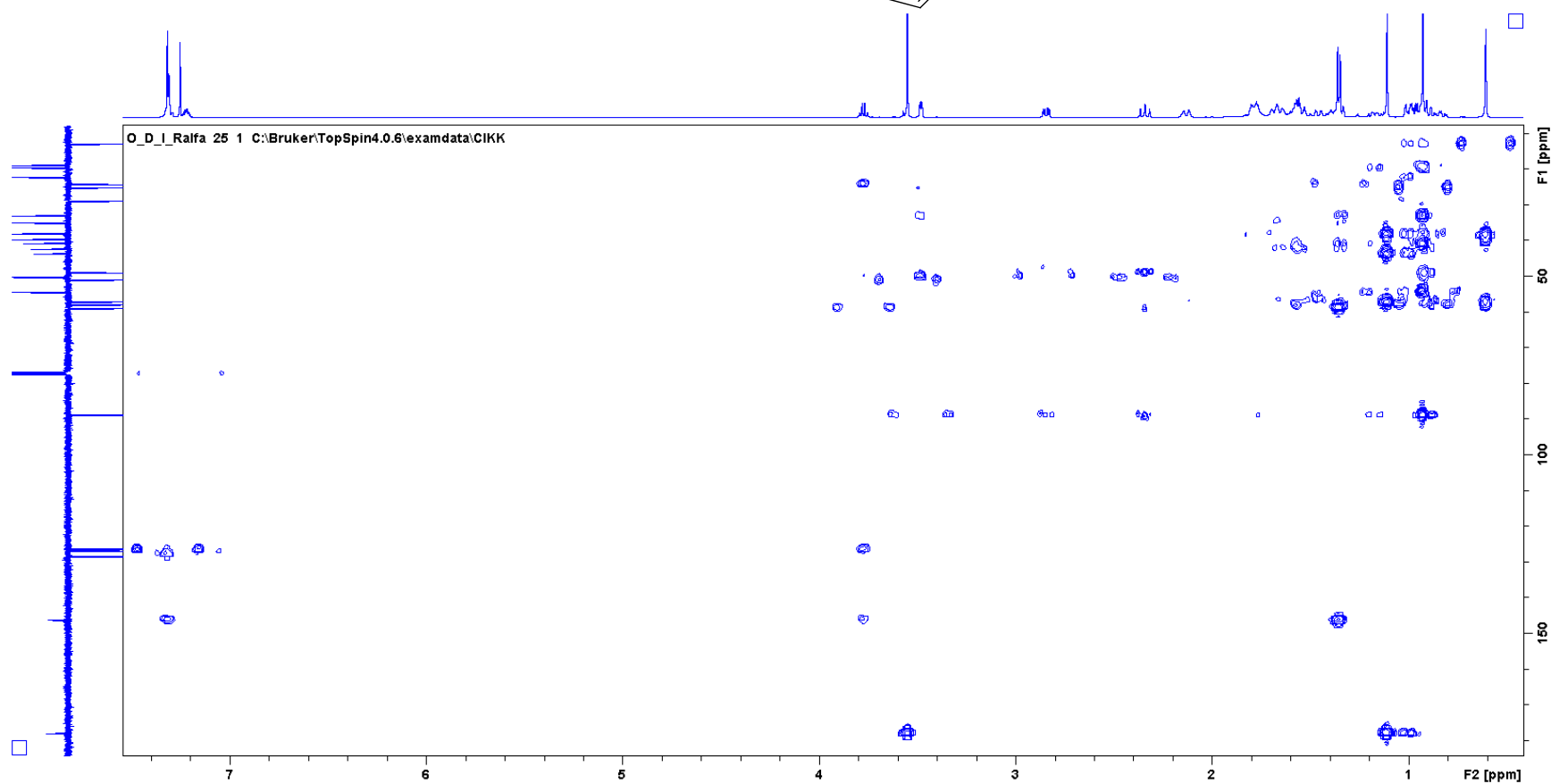
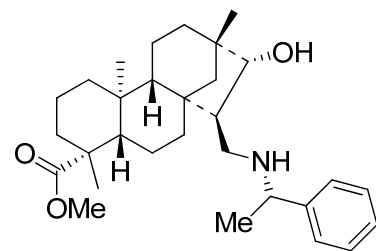
NOESY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((*R*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**10**)



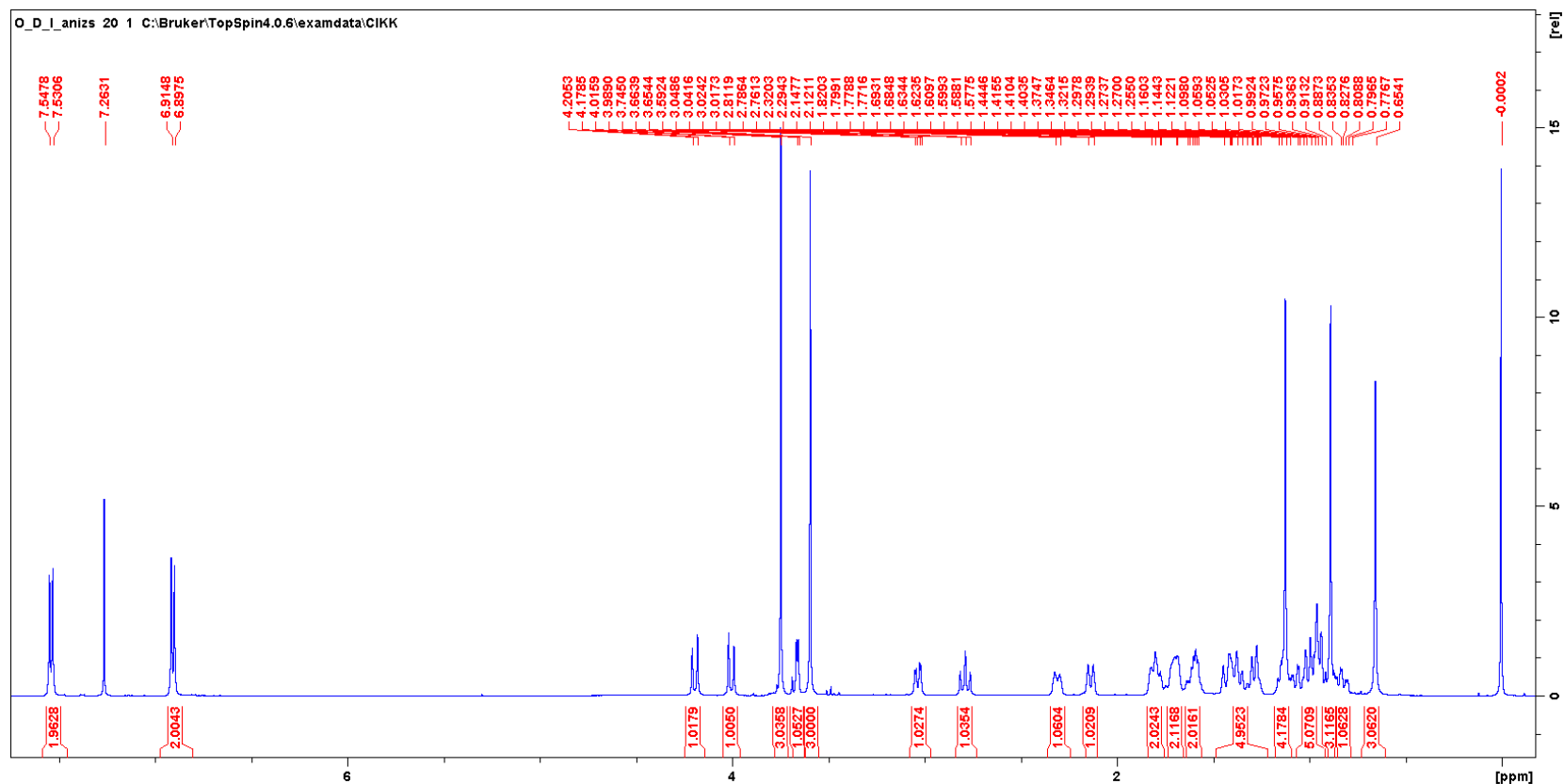
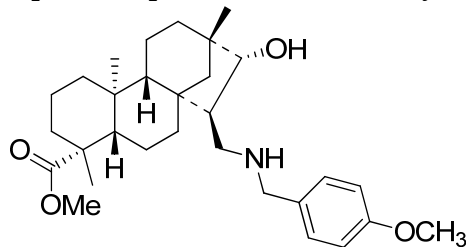
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((*R*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**10**)



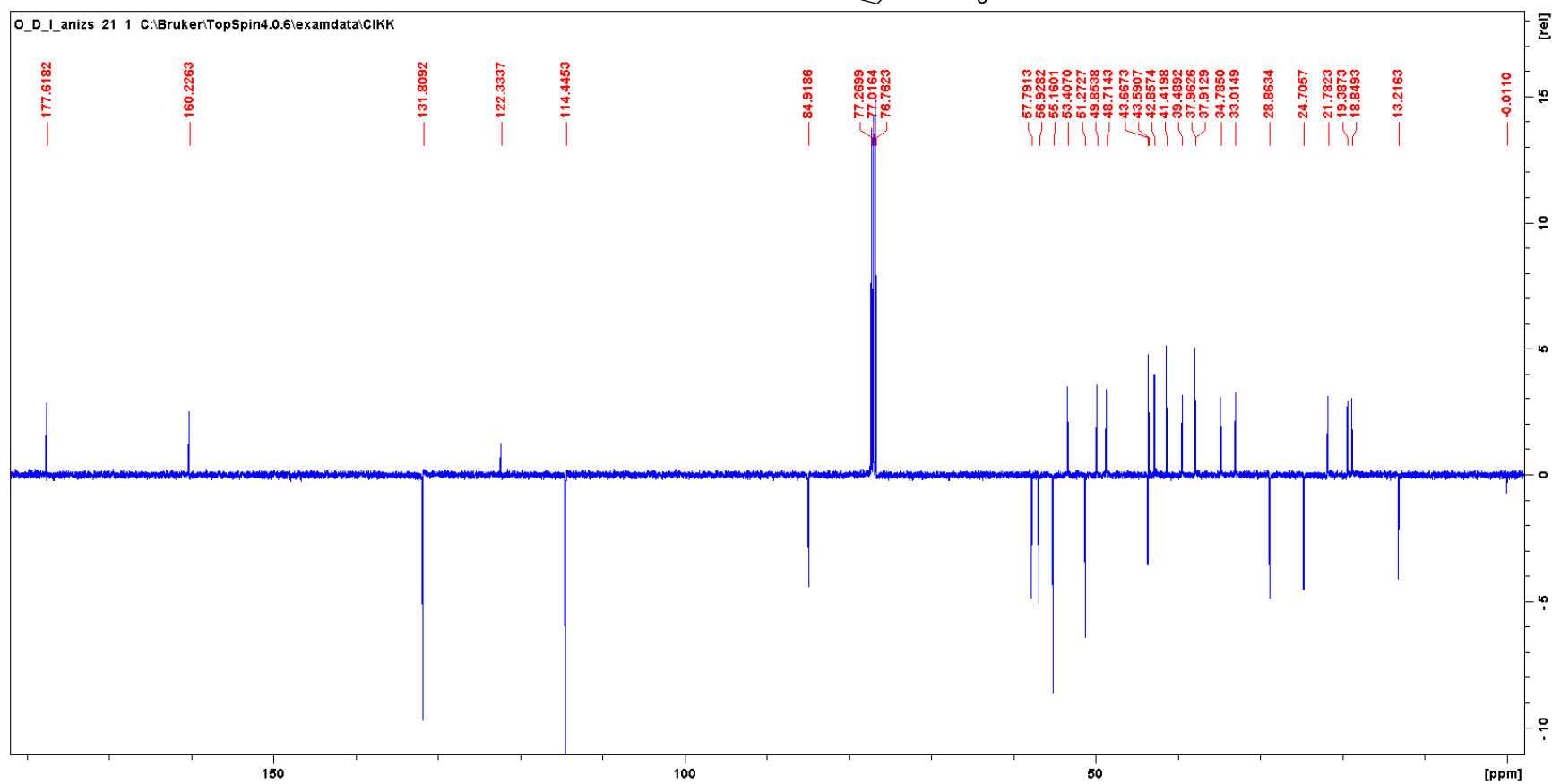
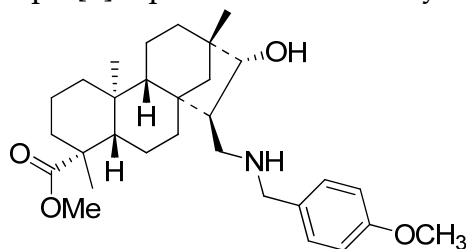
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((((*R*)-1-phenylethyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**10**)



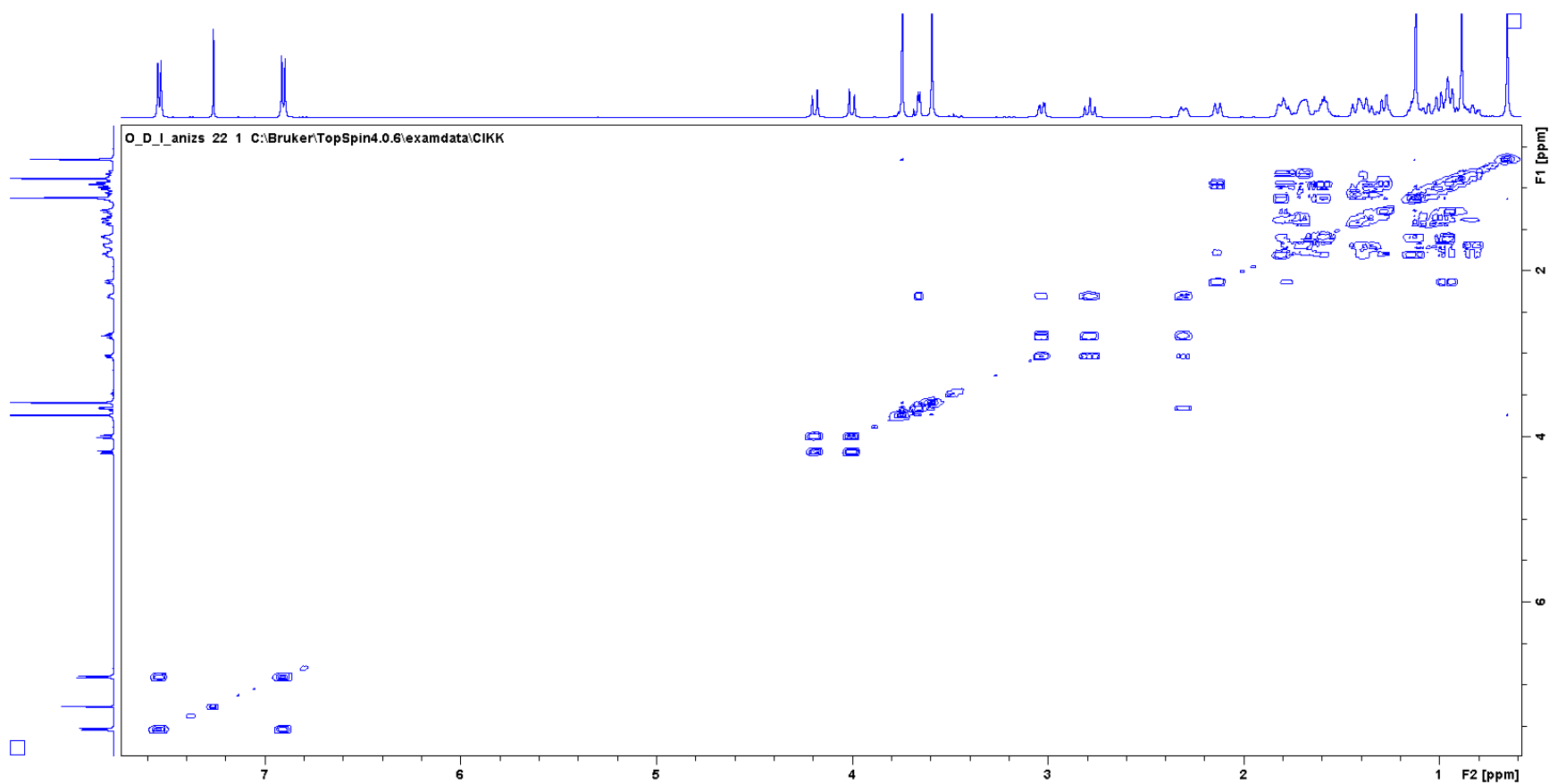
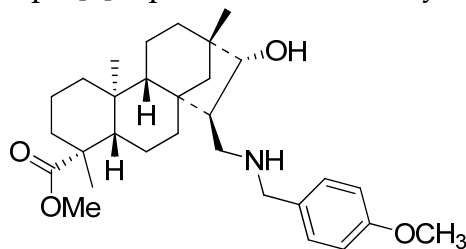
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-7-(((4-methoxybenzyl)amino)methyl)-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**11**)



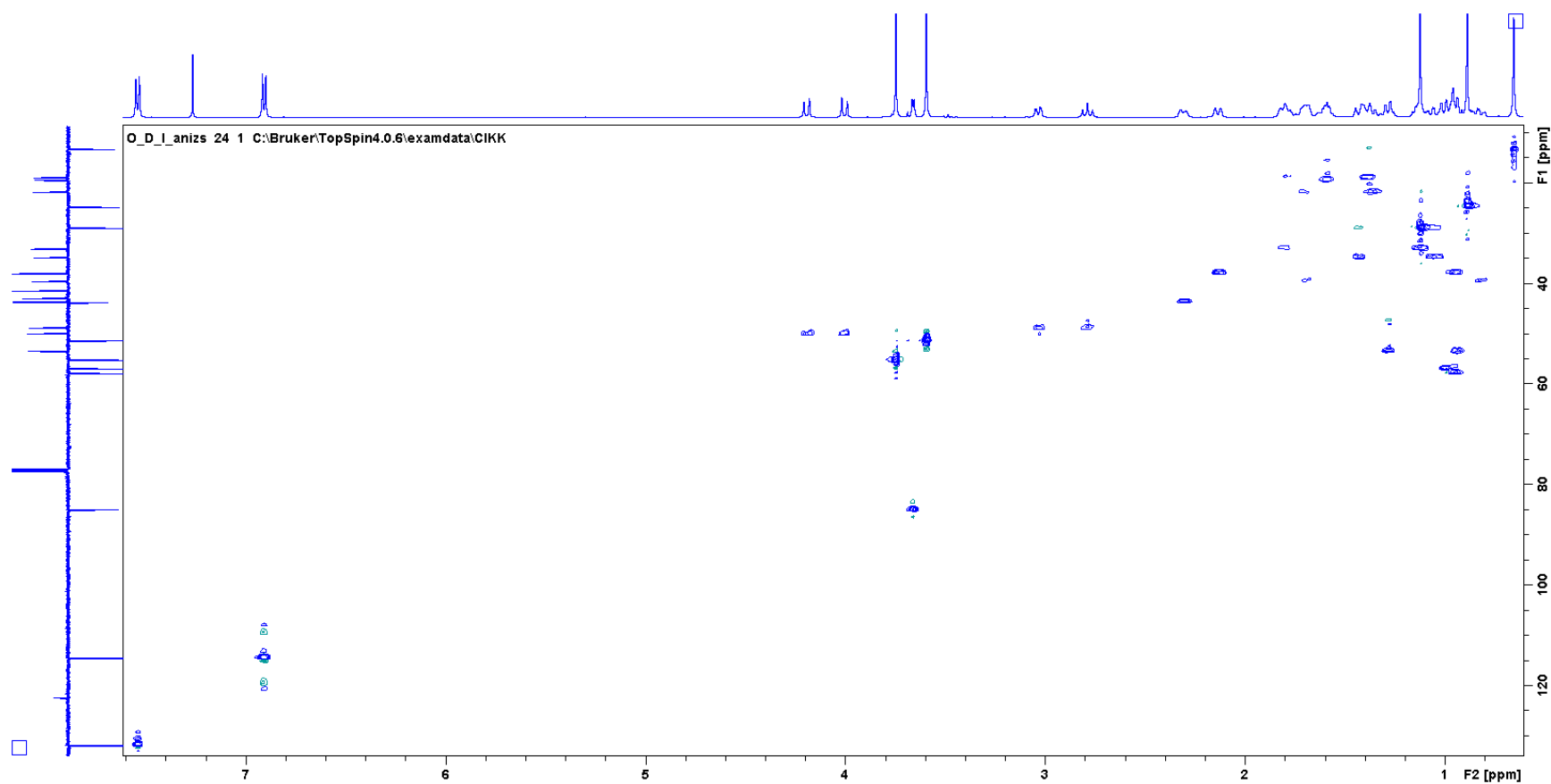
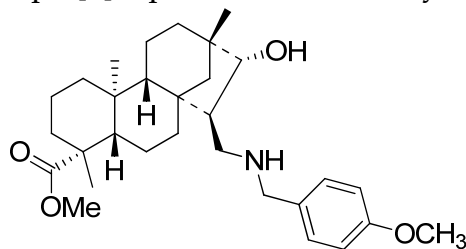
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-7-(((4-methoxybenzyl)amino)methyl)-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**11**)



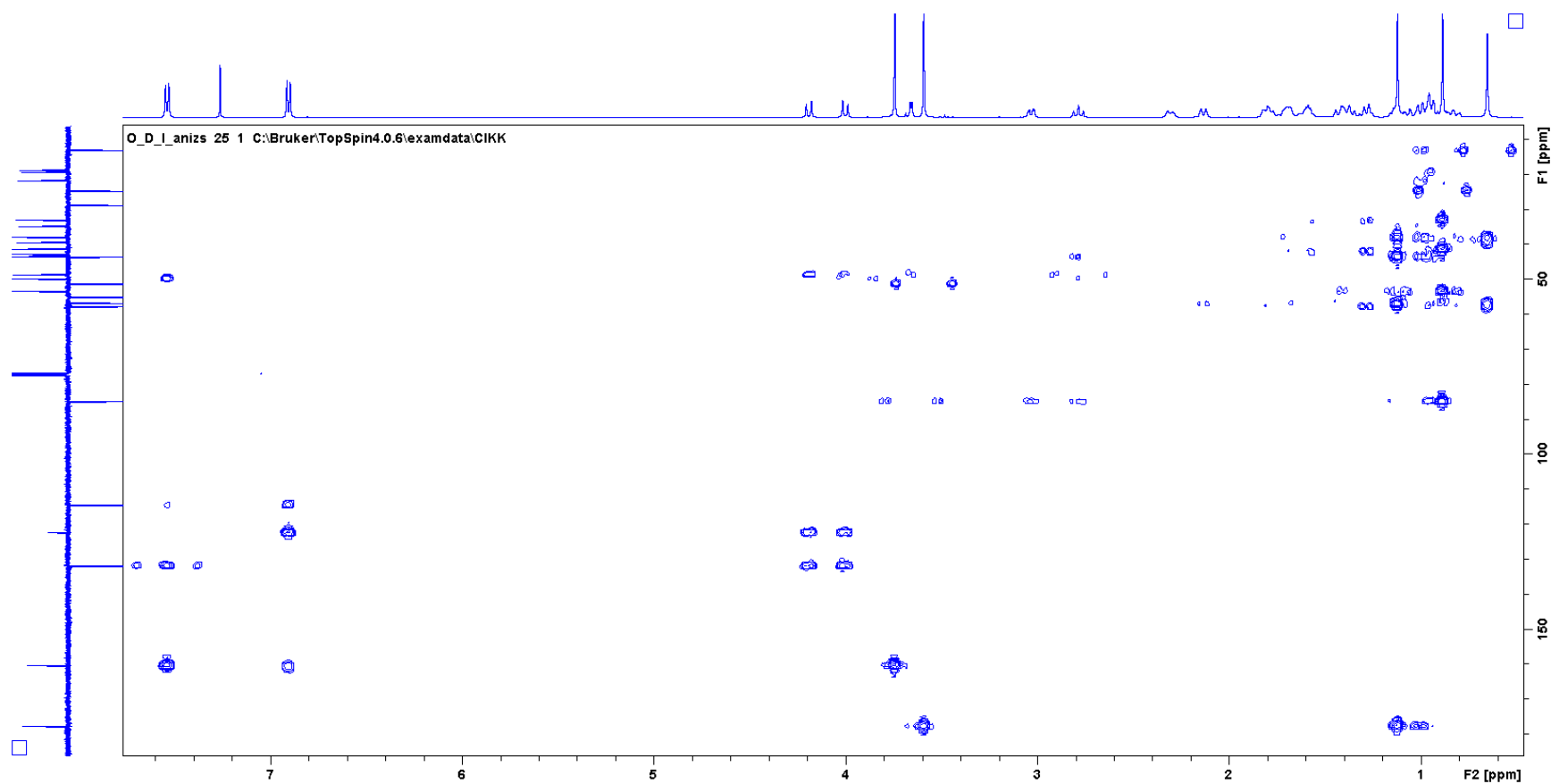
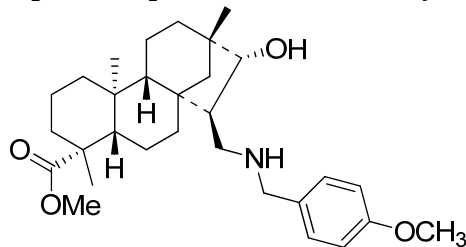
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-7-(((4-methoxybenzyl)amino)methyl)-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**11**)



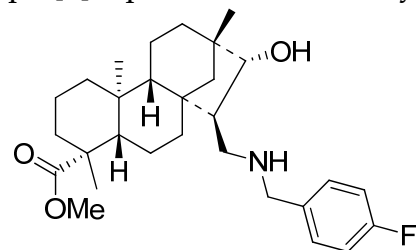
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-7-(((4-methoxybenzyl)amino)methyl)-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**11**)

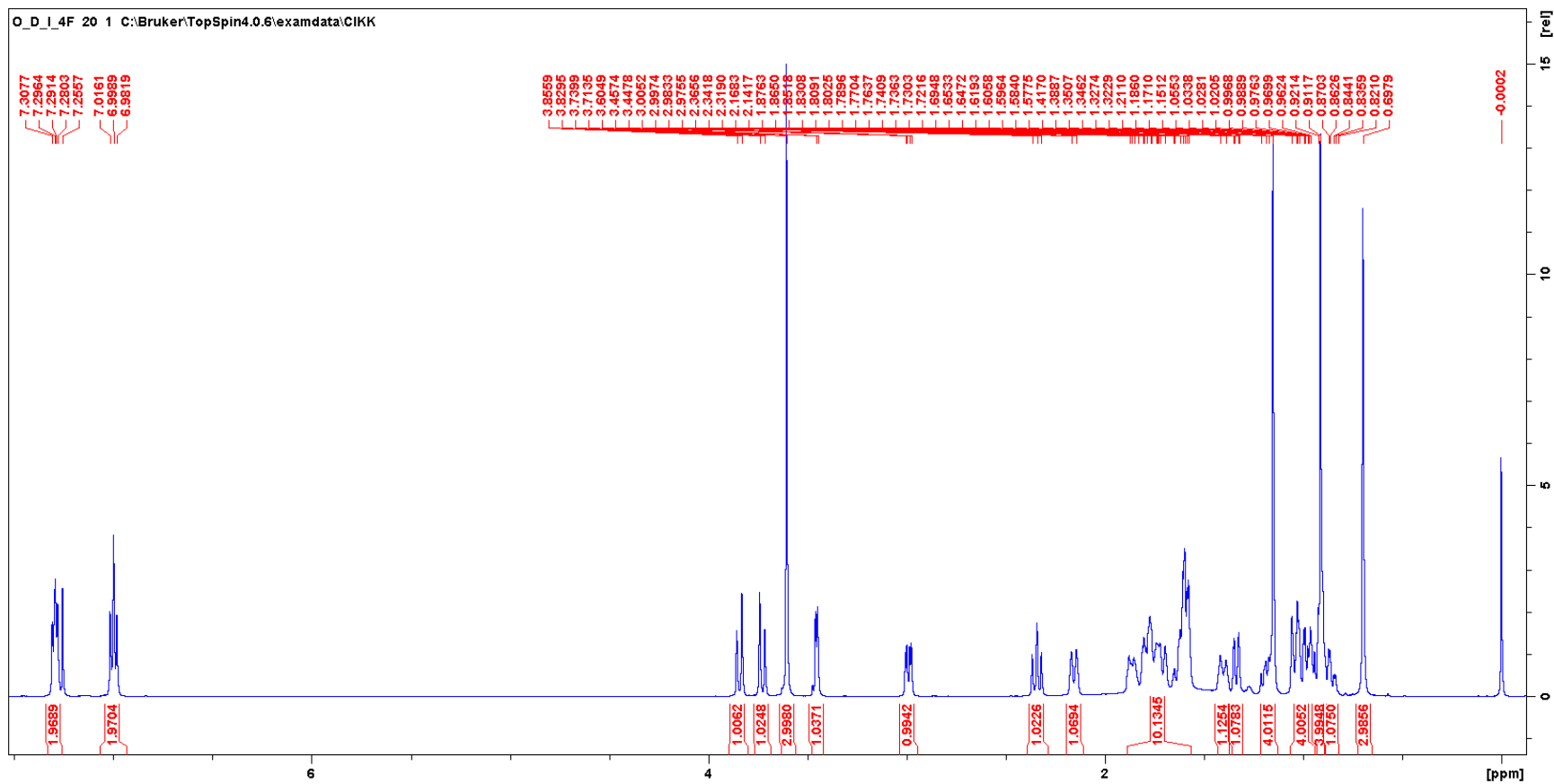


HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-7-(((4-methoxybenzyl)amino)methyl)-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**11**)

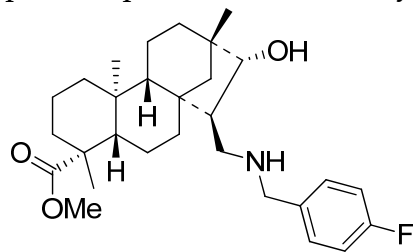


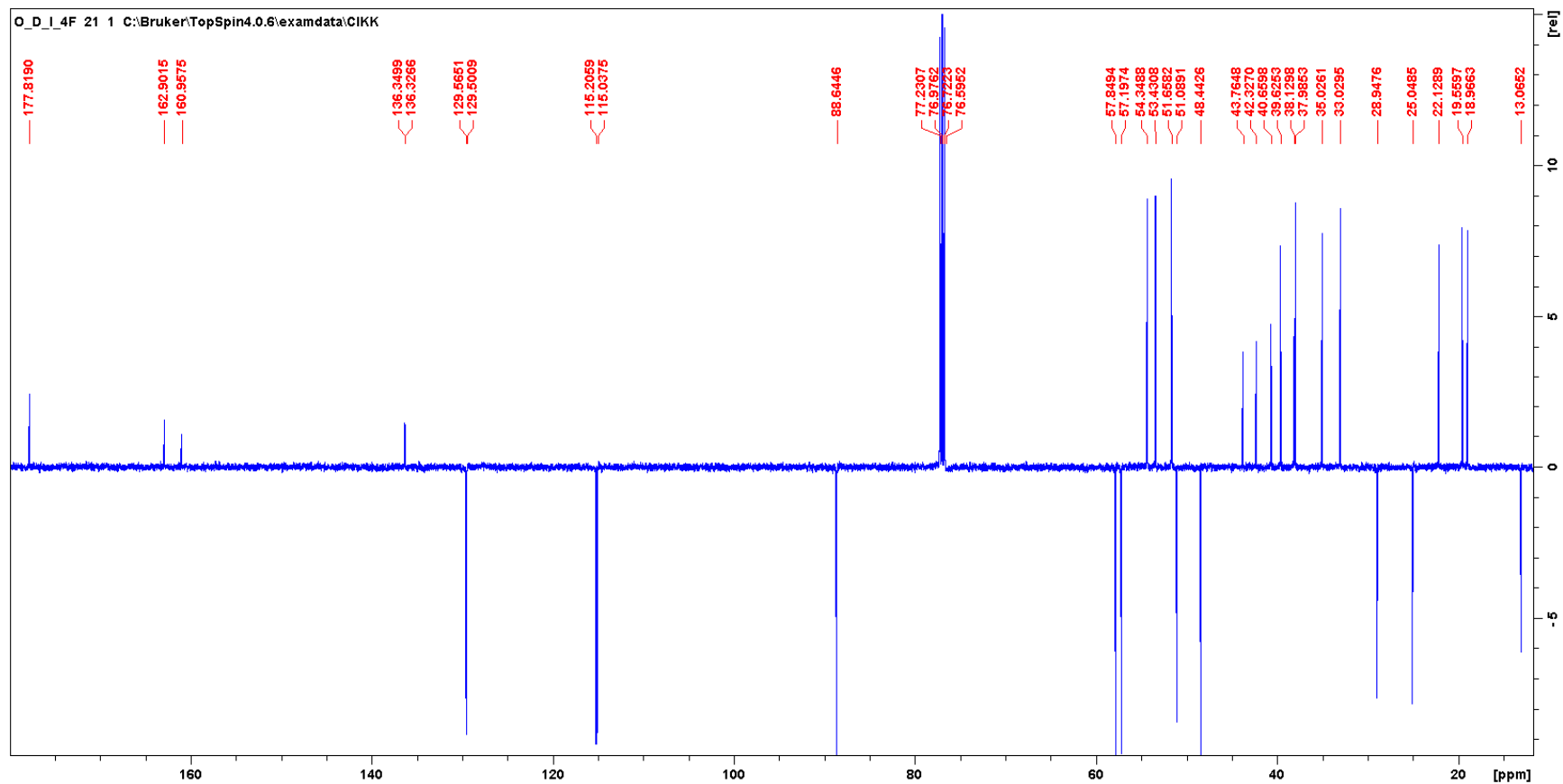
¹H-NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-(((4-fluorobenzyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**12**)



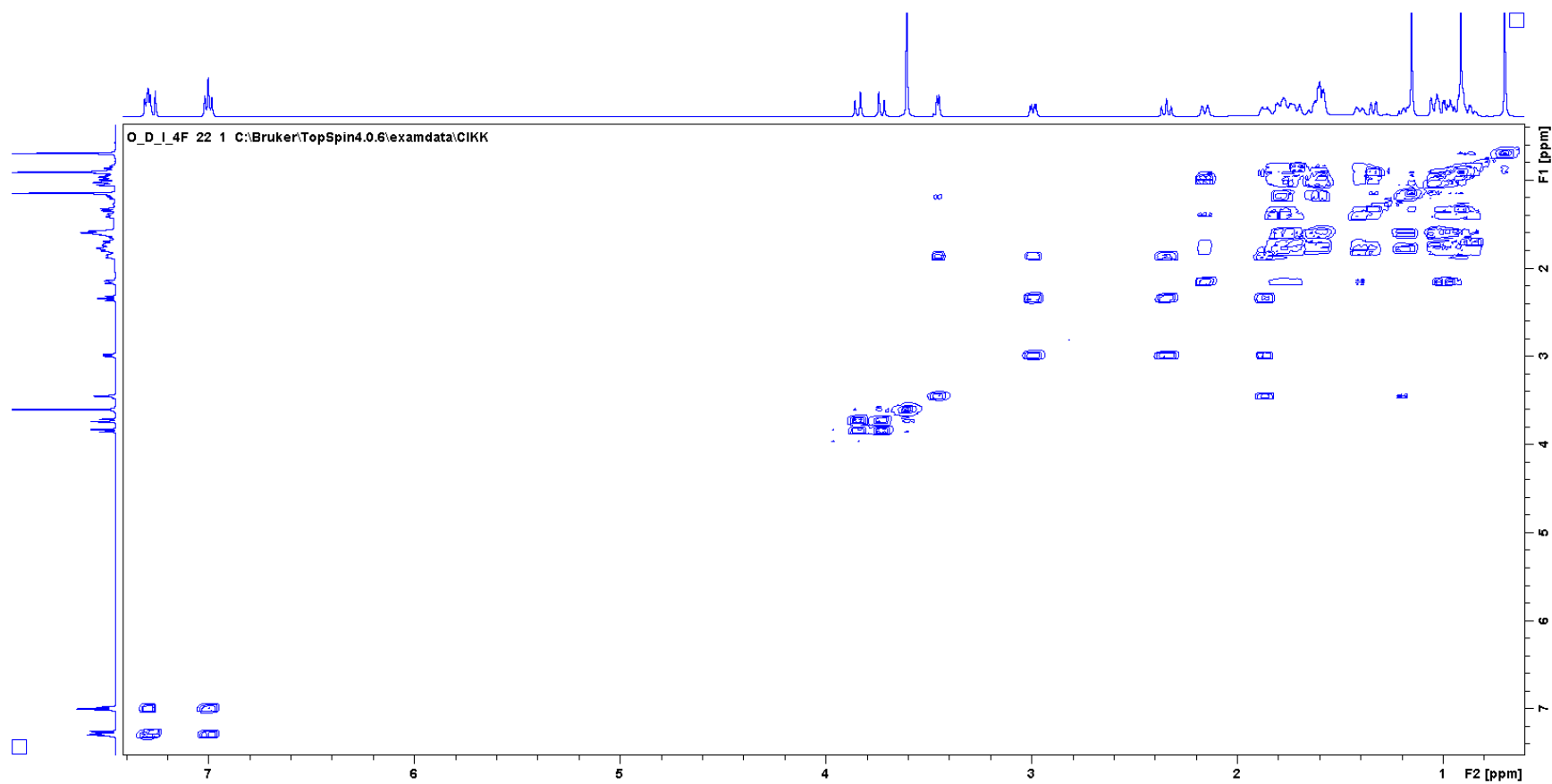
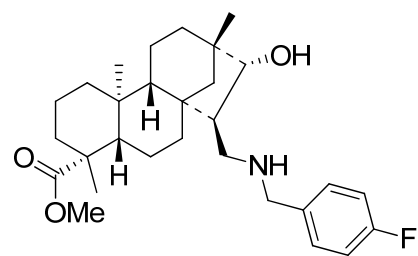


^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-(((4-fluorobenzyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**12**)

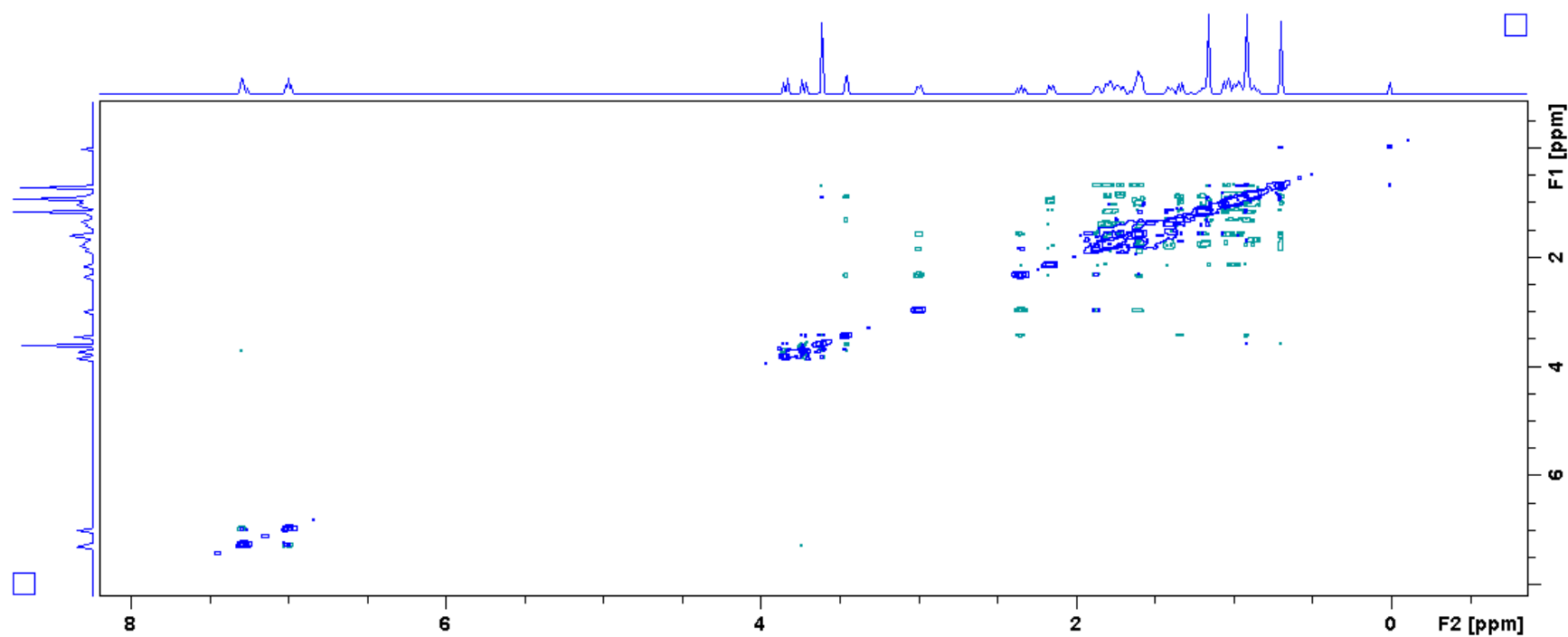
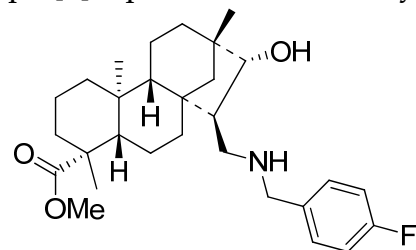




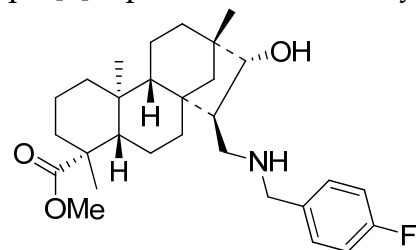
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-(((4-fluorobenzyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**12**)

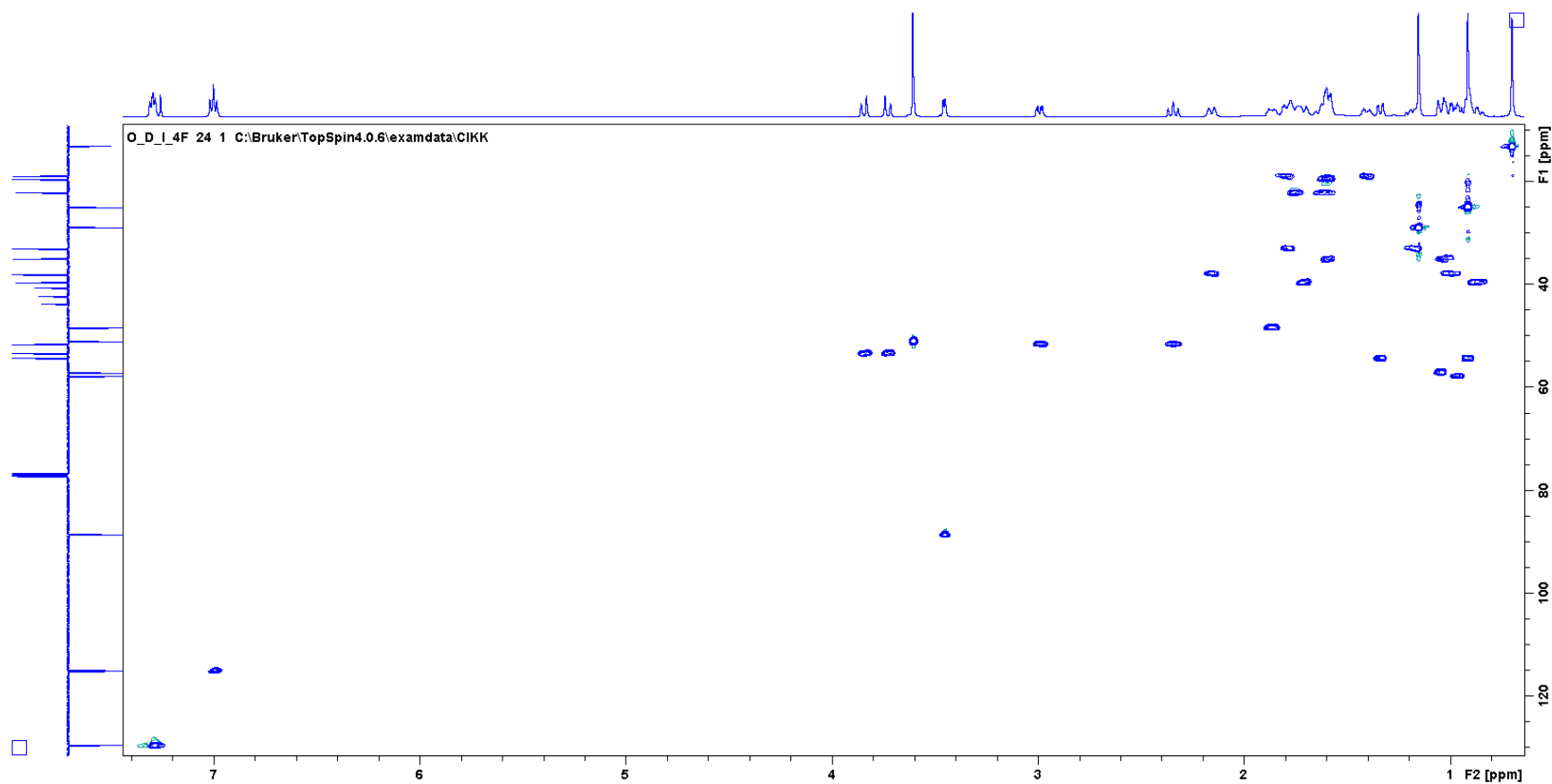


NOESY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-(((4-fluorobenzyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**12**)

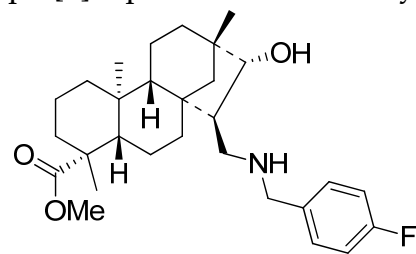


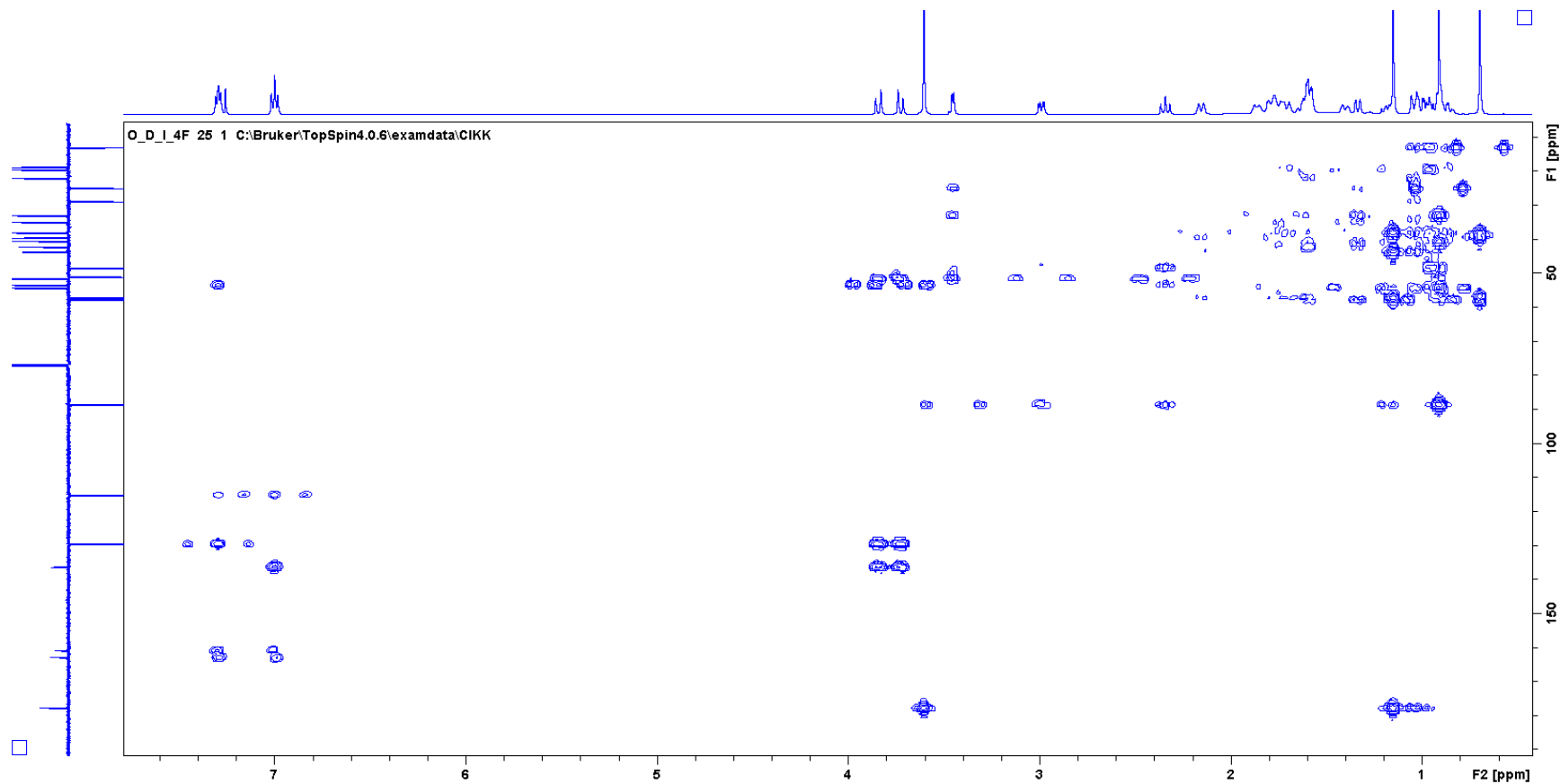
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-(((4-fluorobenzyl)amino)methyl)-8-hydroxy-4,9,11b-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**12**)



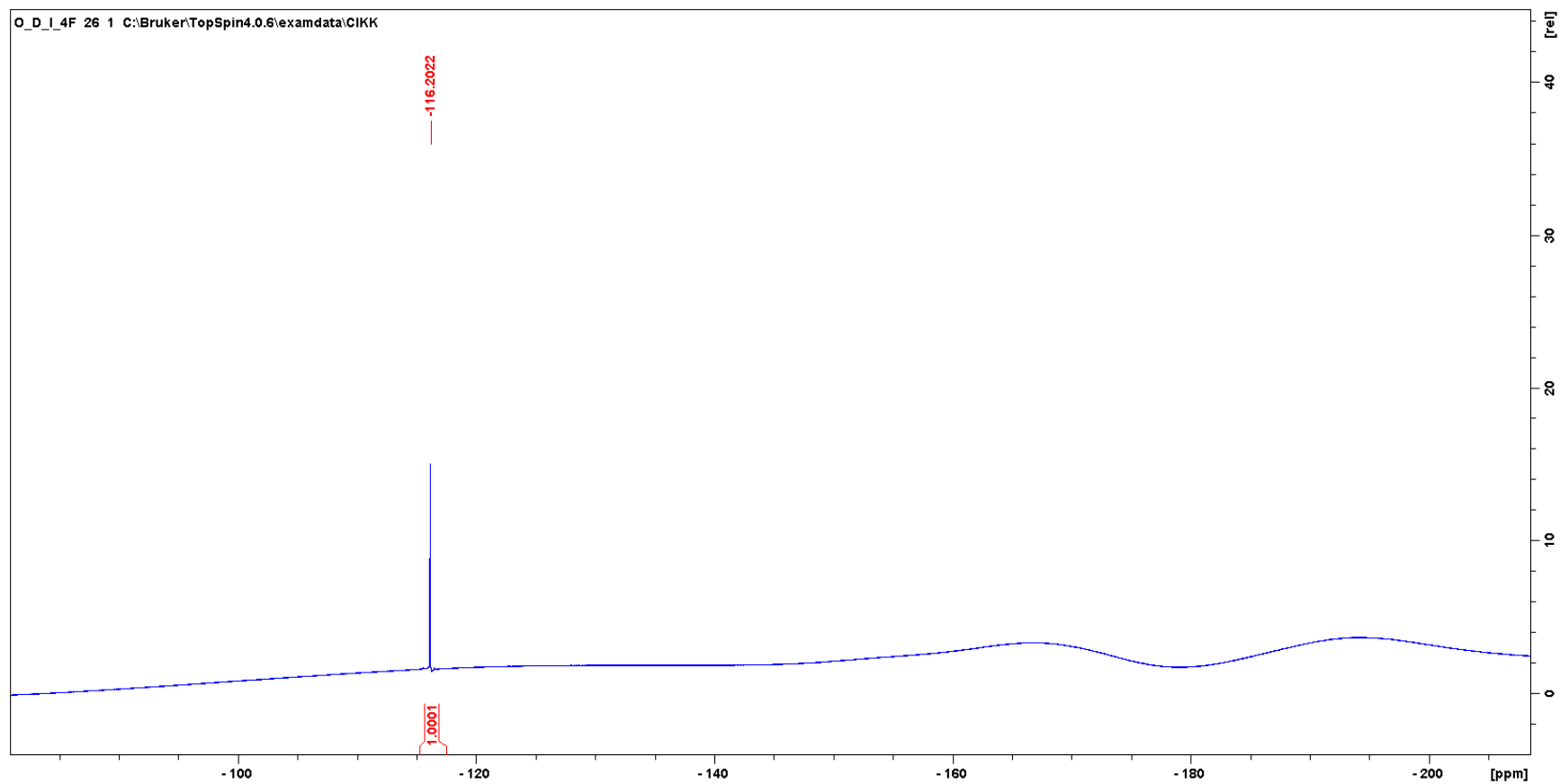
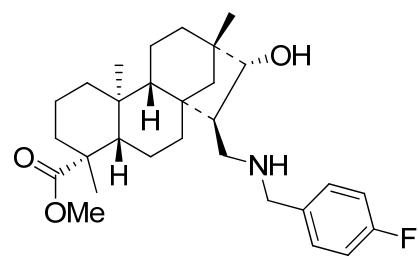


HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-(((4-fluorobenzyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**12**)

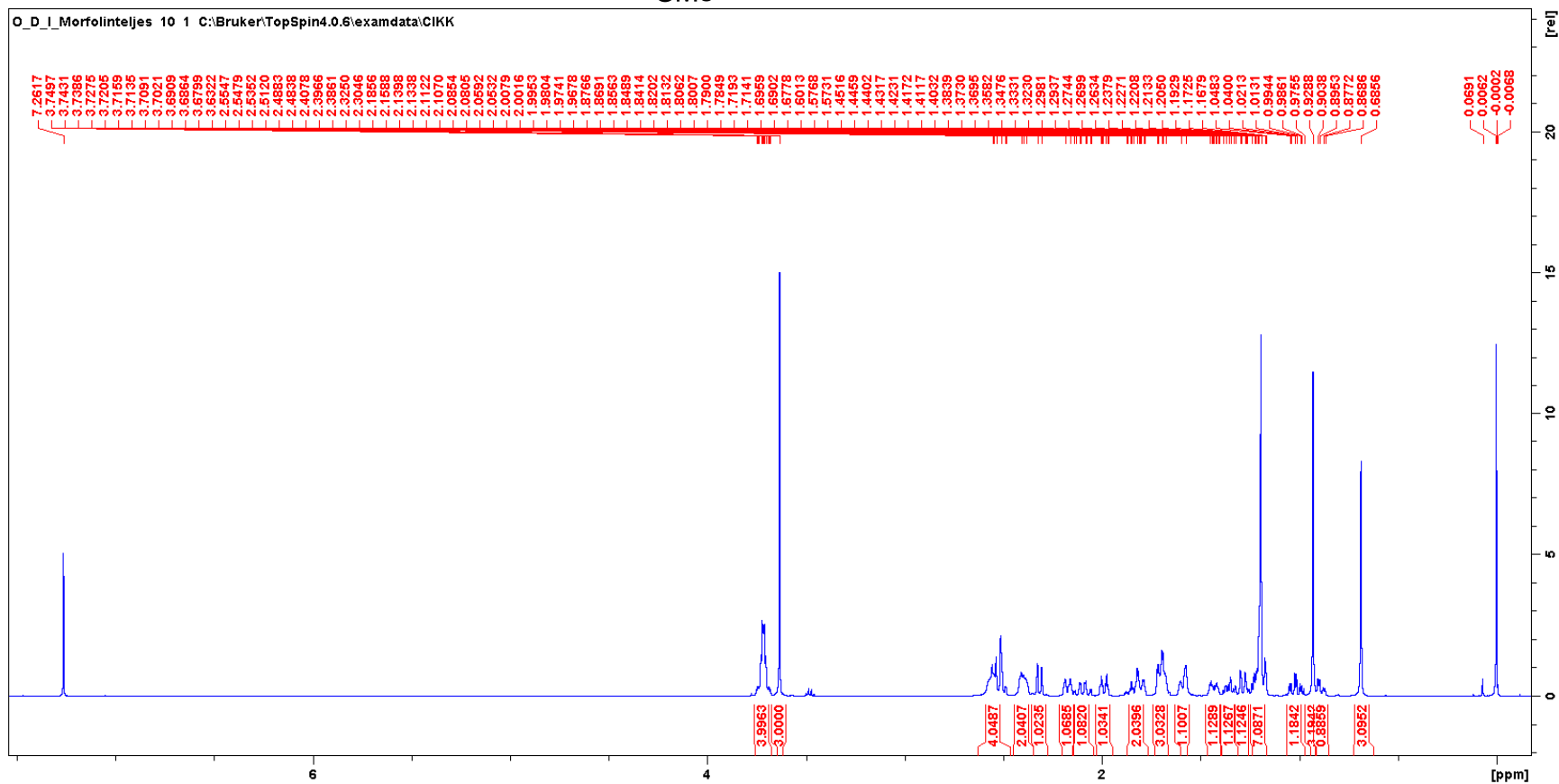
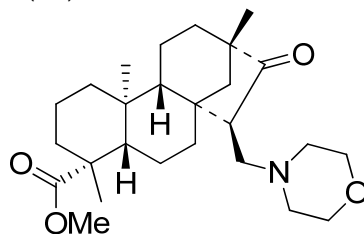




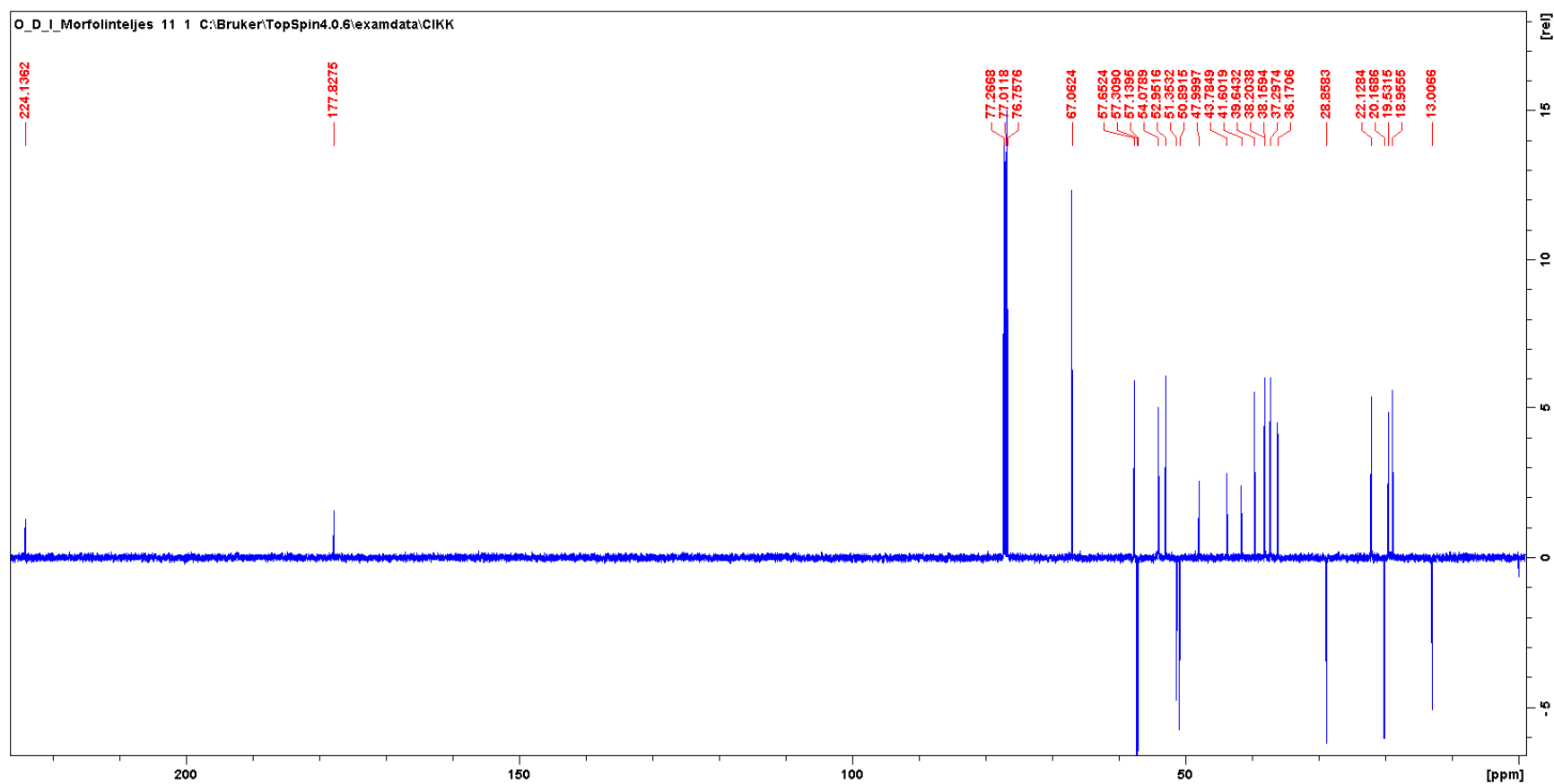
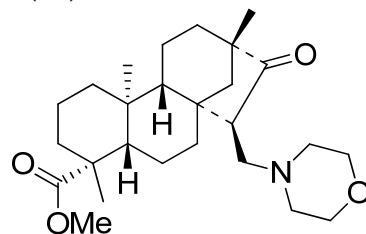
^{19}F -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-(((4-fluorobenzyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**12**)



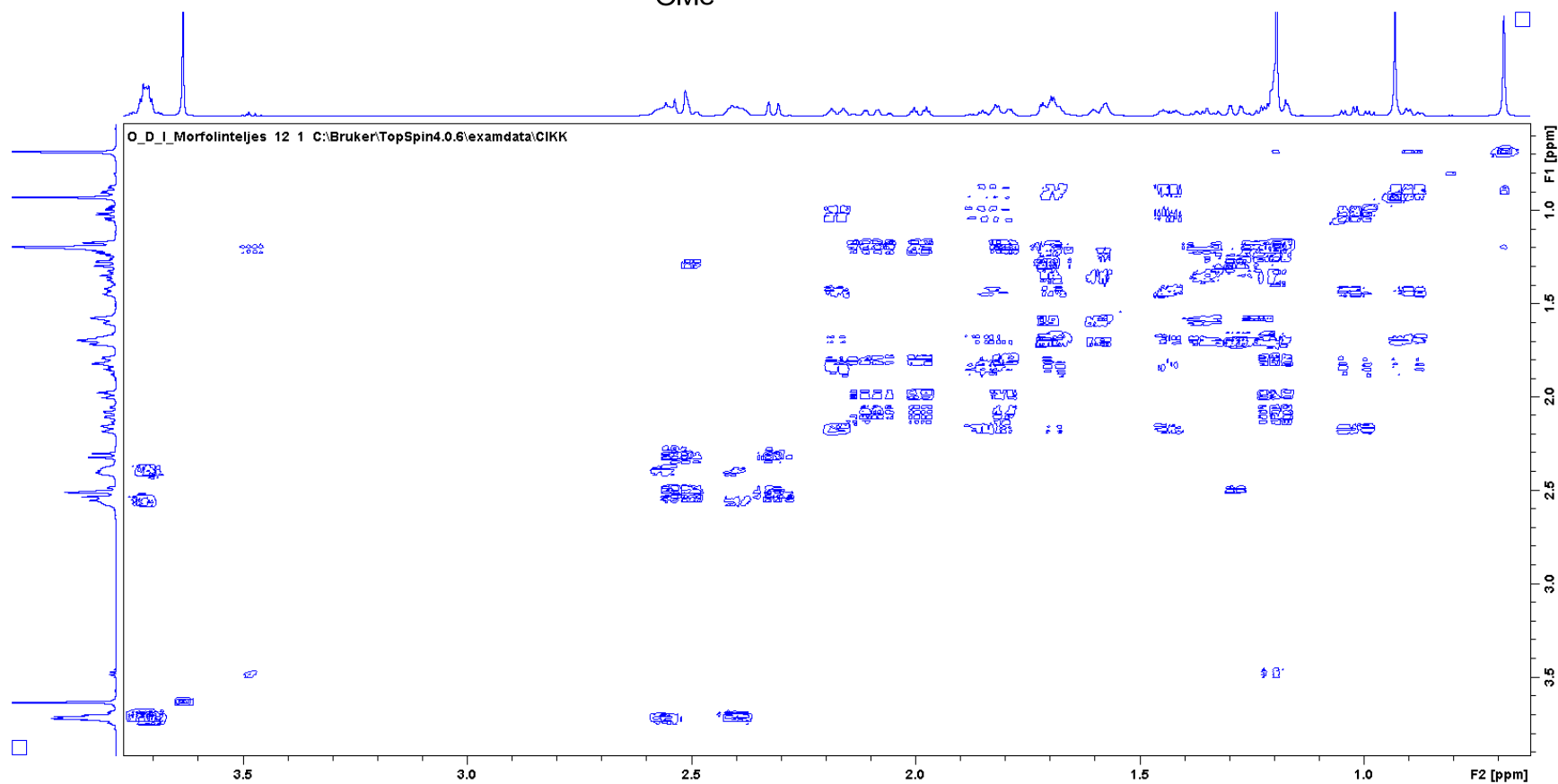
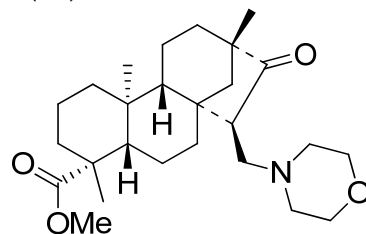
¹H-NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-7-(morpholinomethyl)-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**14**)



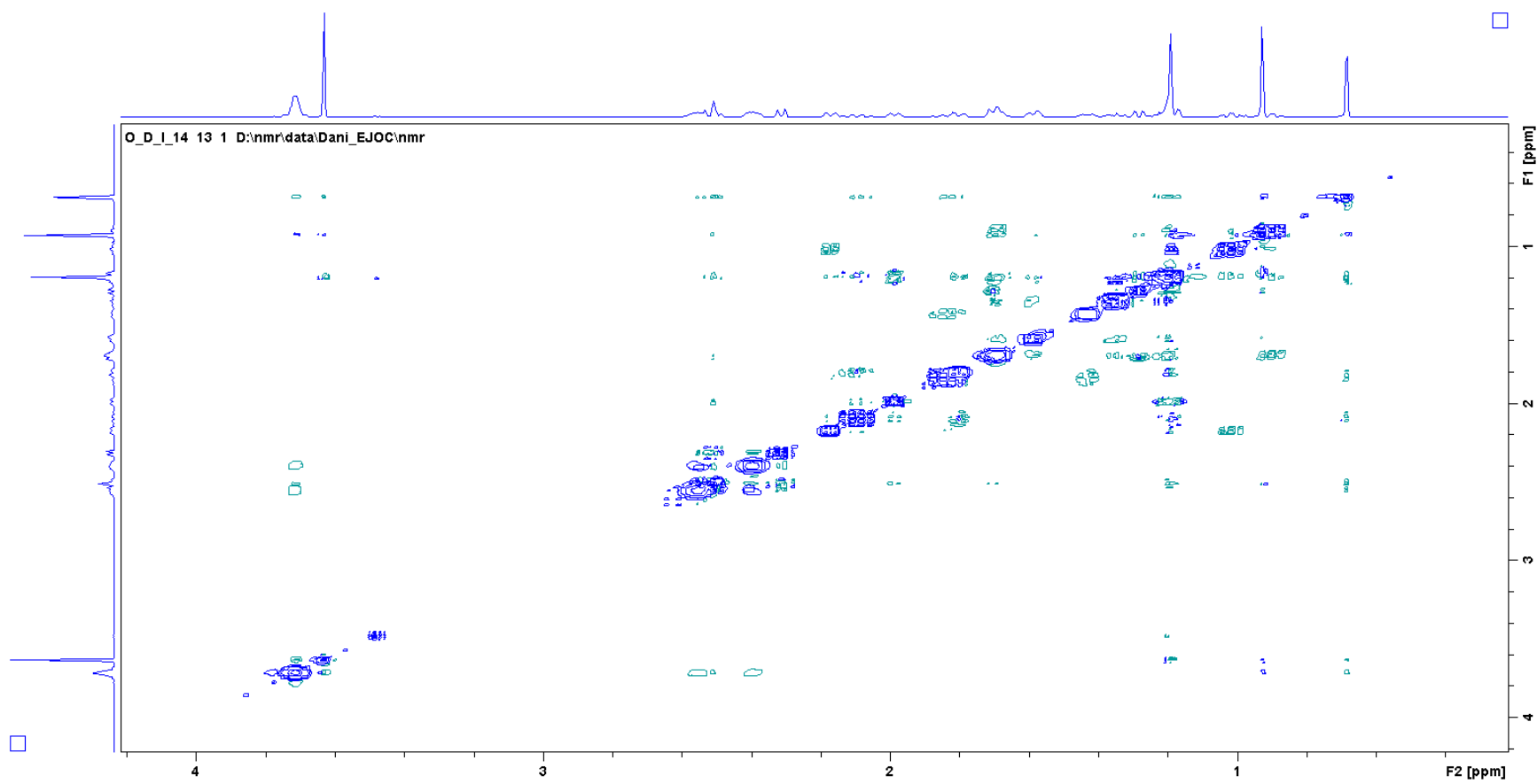
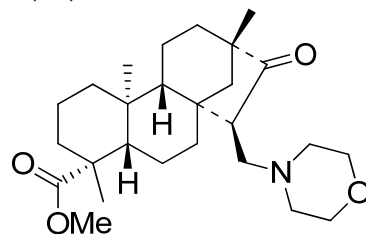
^{13}C -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-7-(morpholinomethyl)-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**14**)



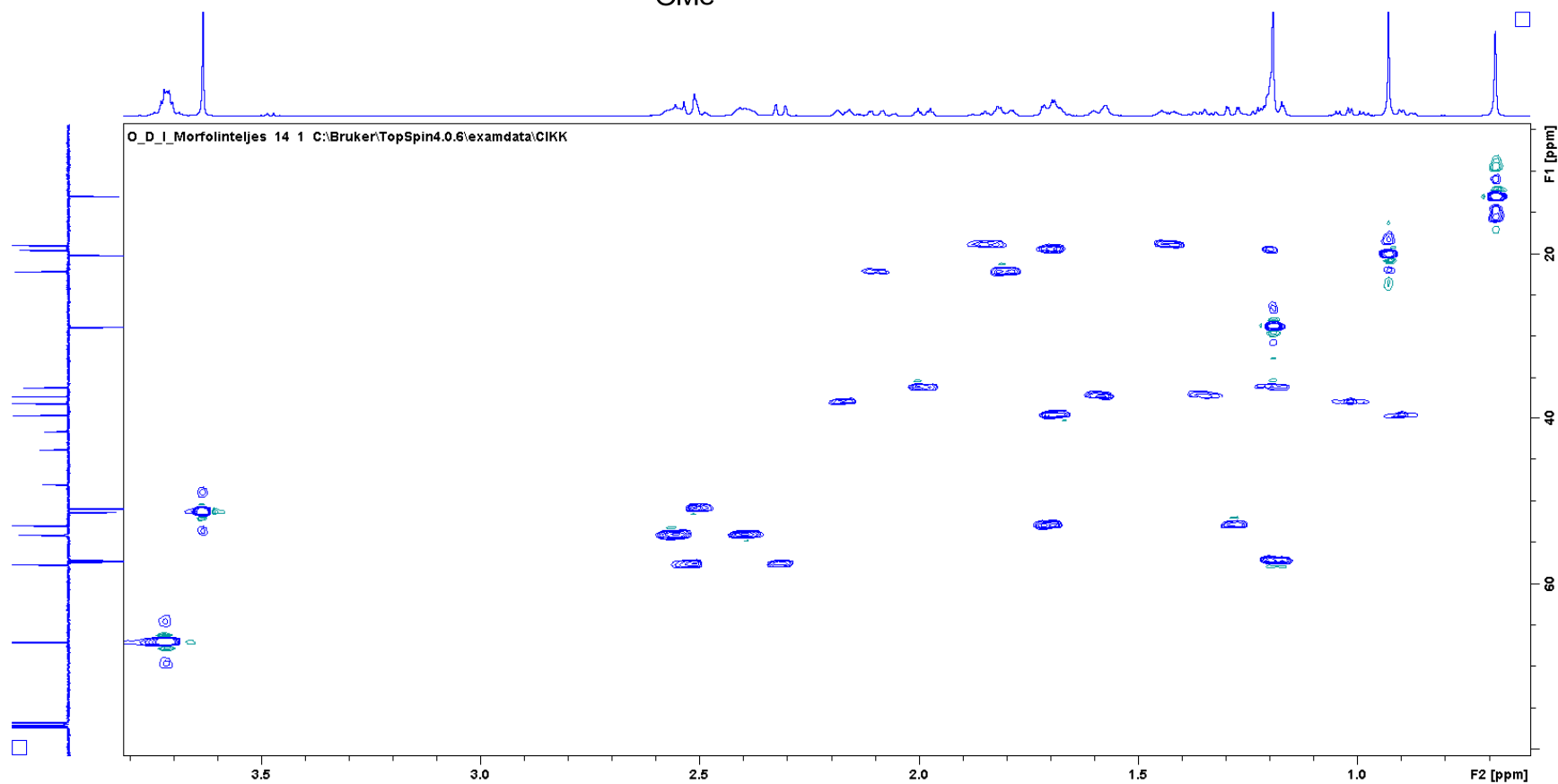
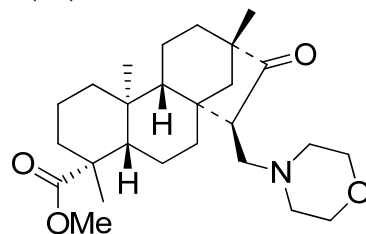
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-7-(morpholinomethyl)-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**14**)



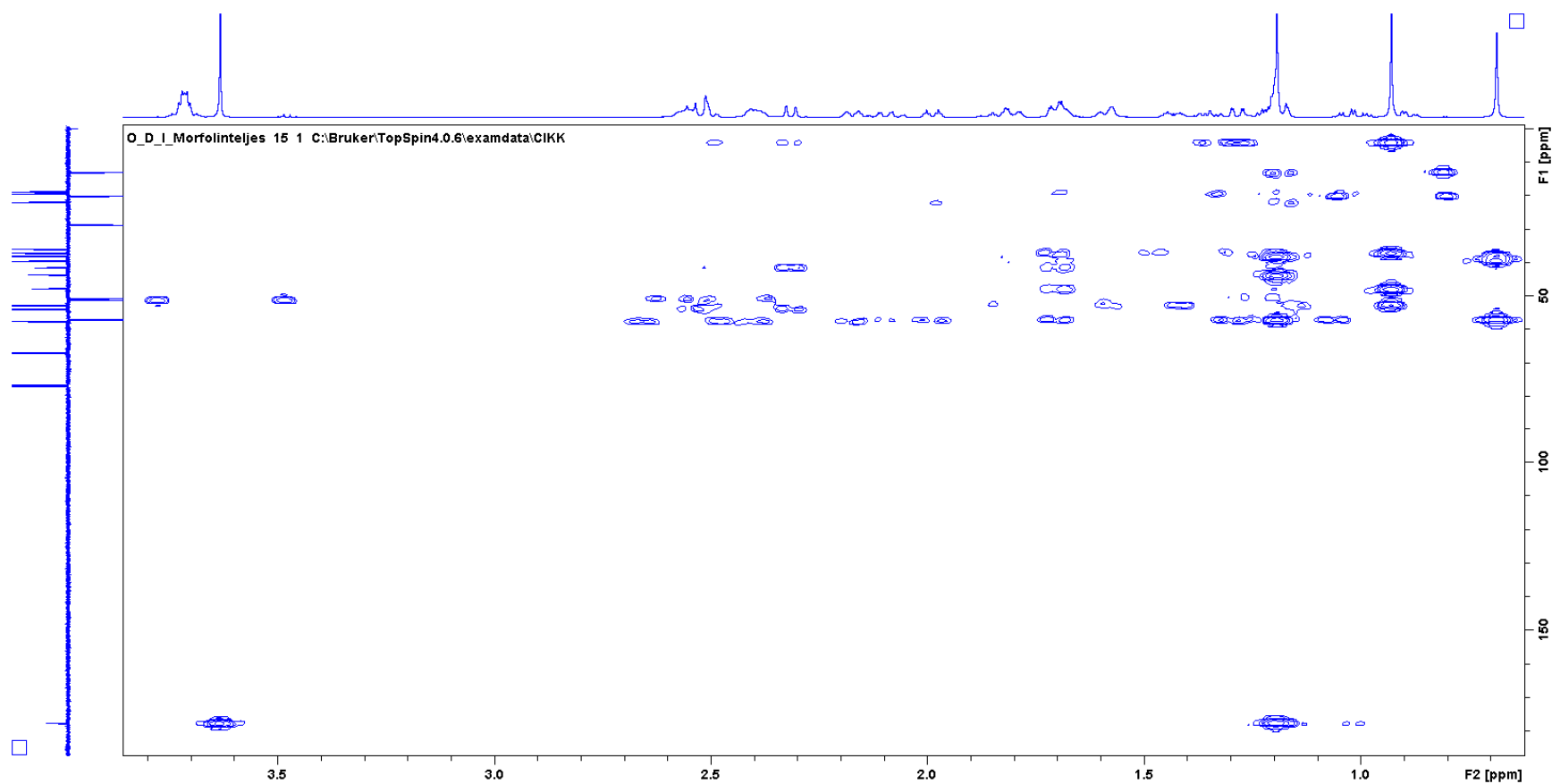
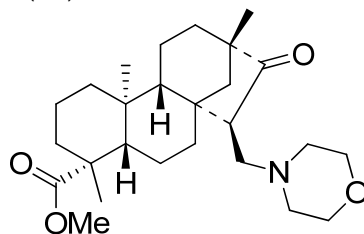
NOESY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-7-(morpholinomethyl)-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**14**)



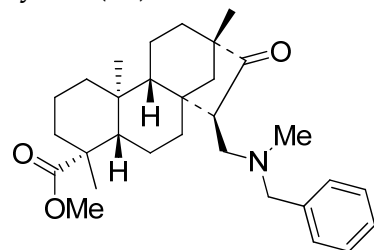
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-7-(morpholinomethyl)-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**14**)

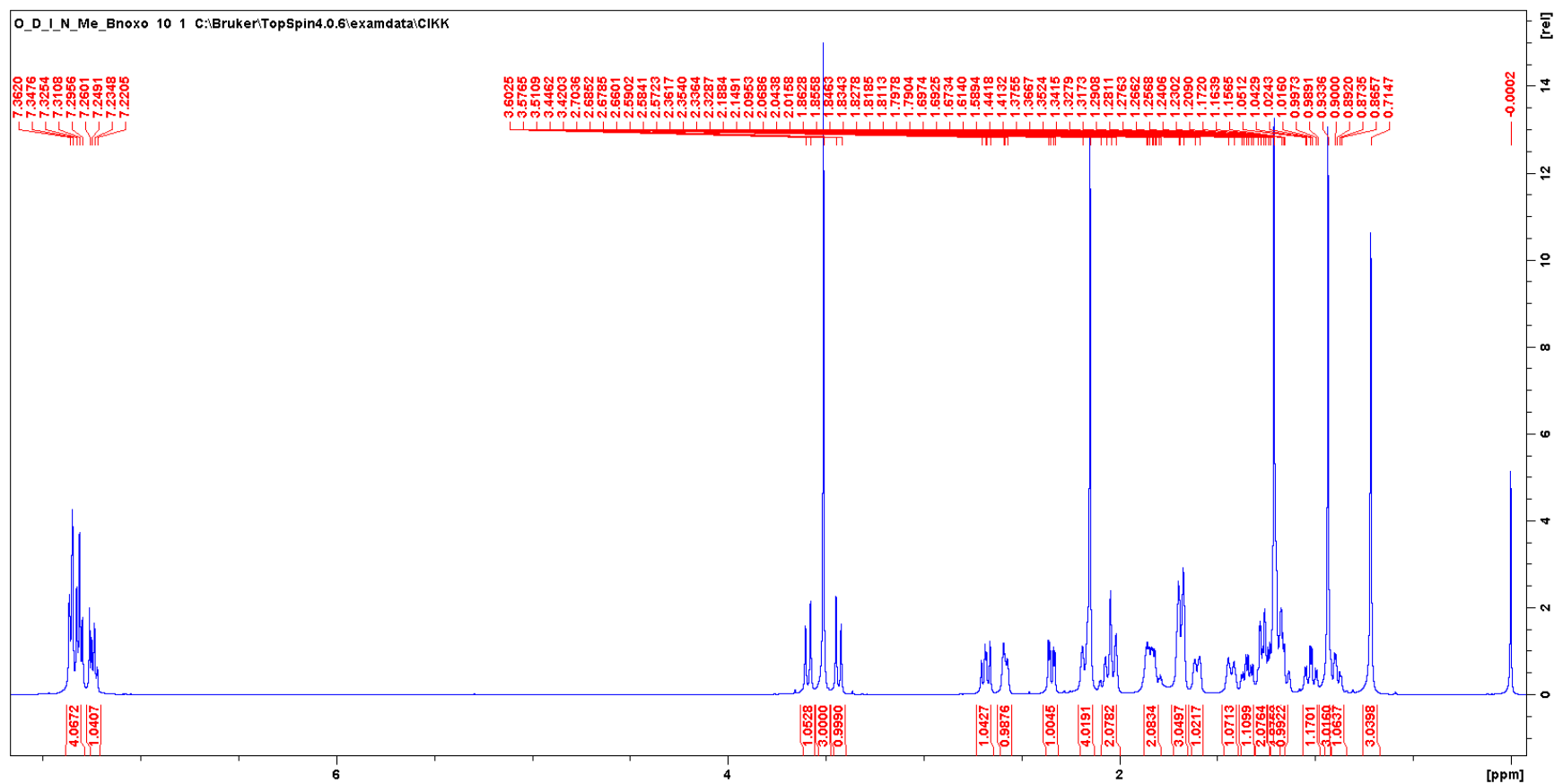


HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-7-(morpholinomethyl)-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**14**)

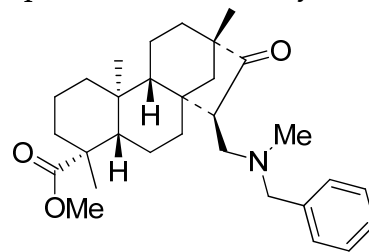


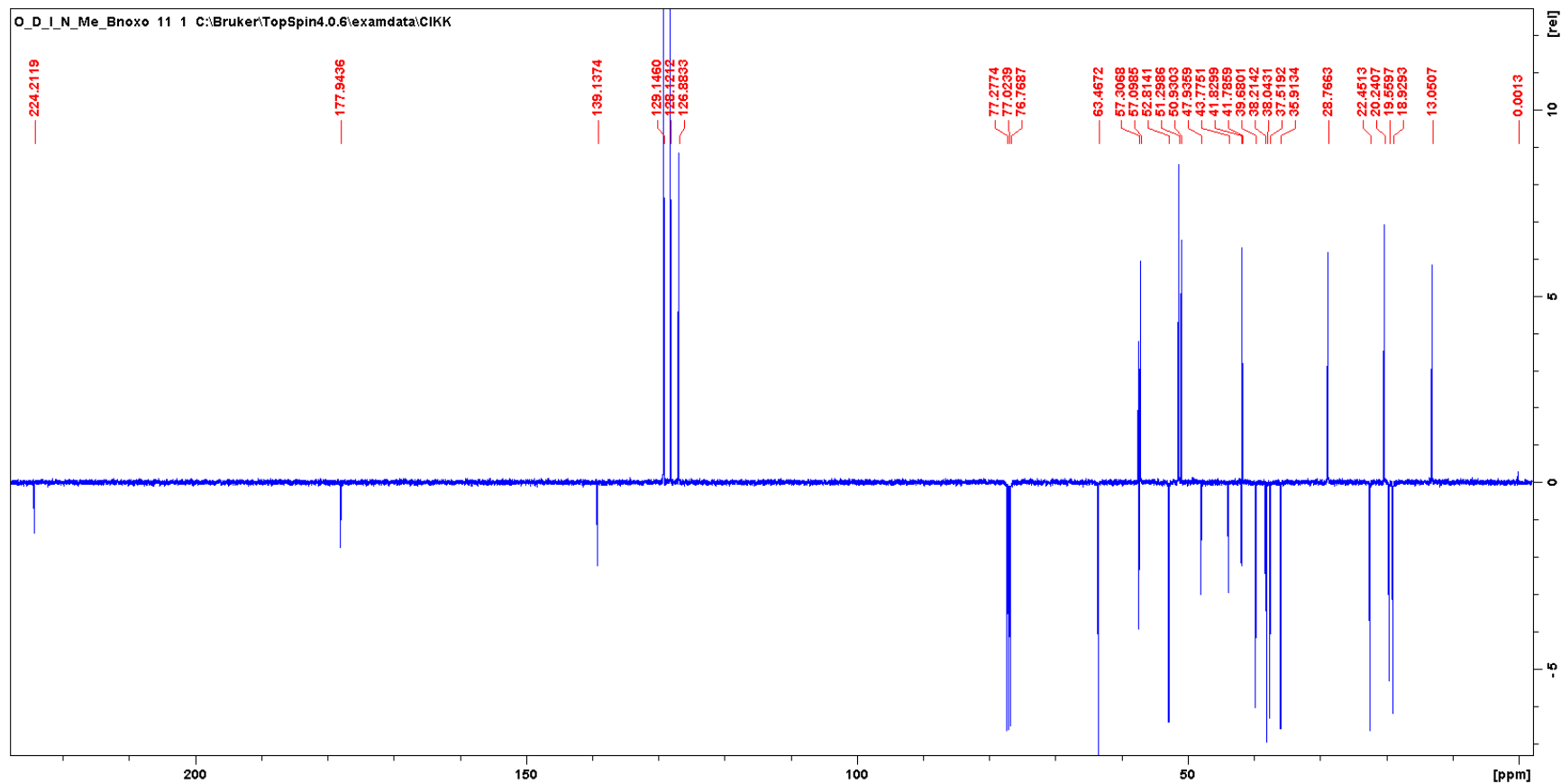
¹H-NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**15**)



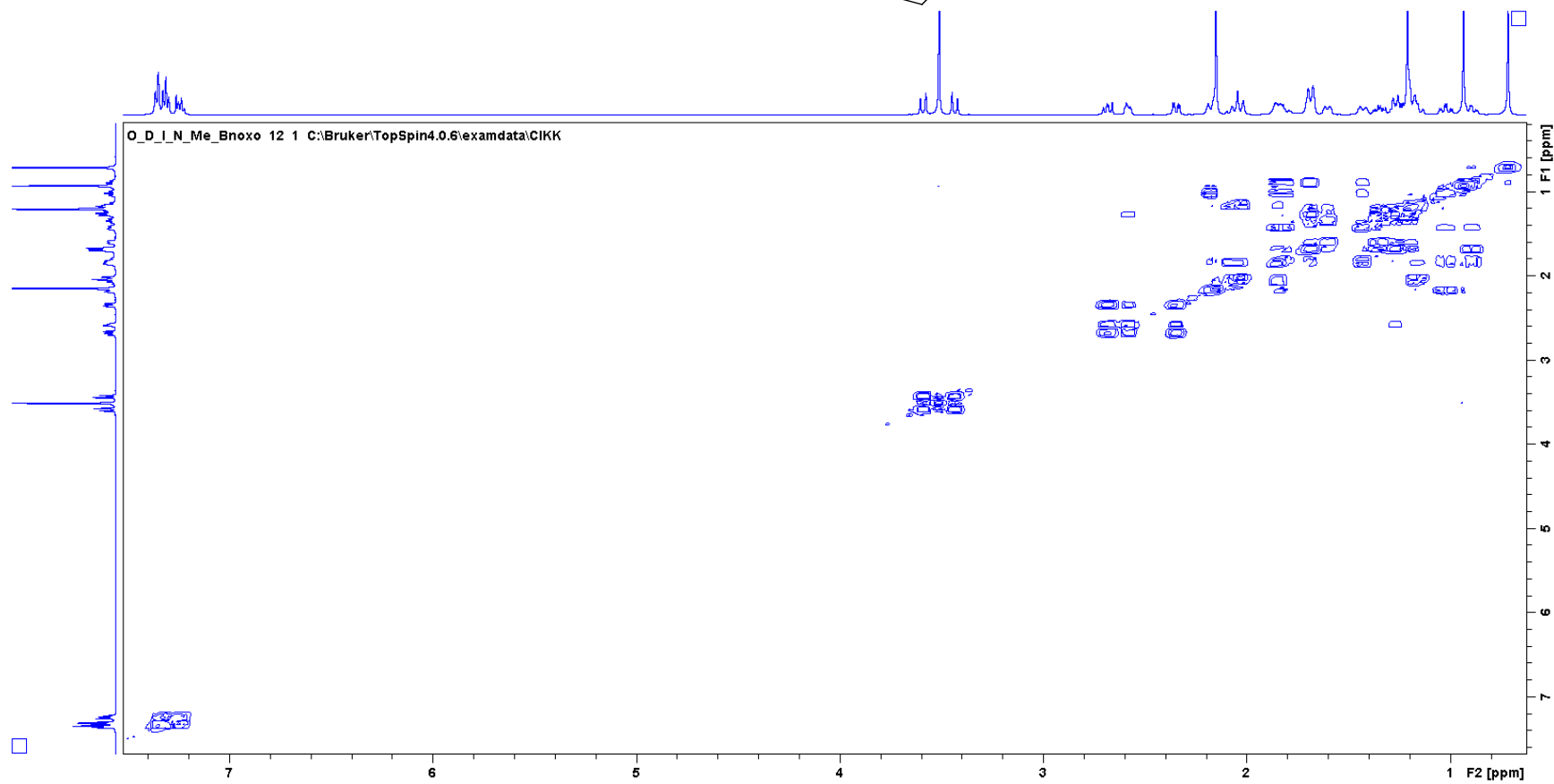
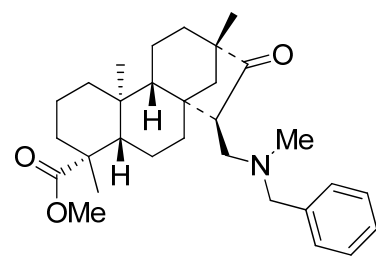


^{13}C -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**15**)

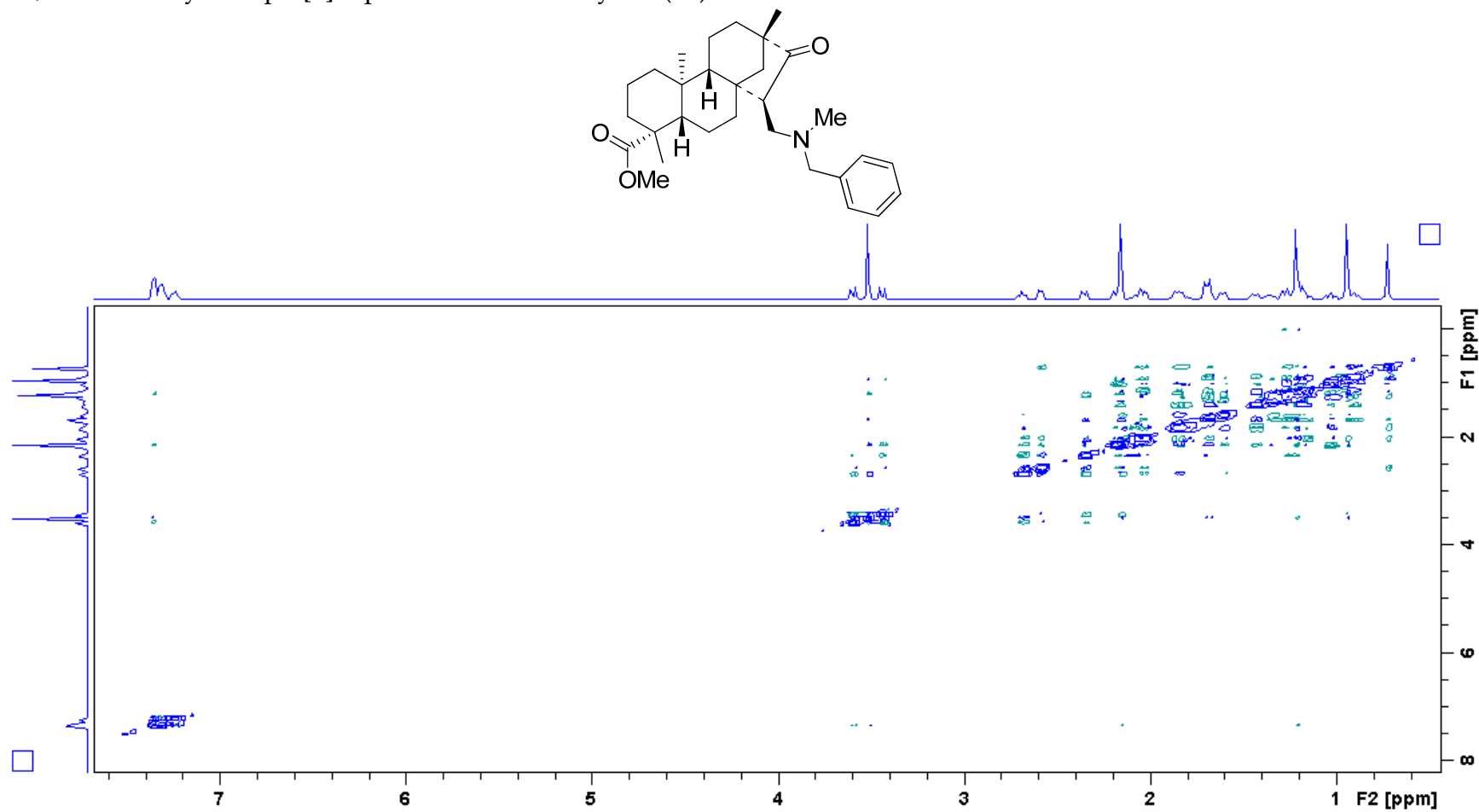




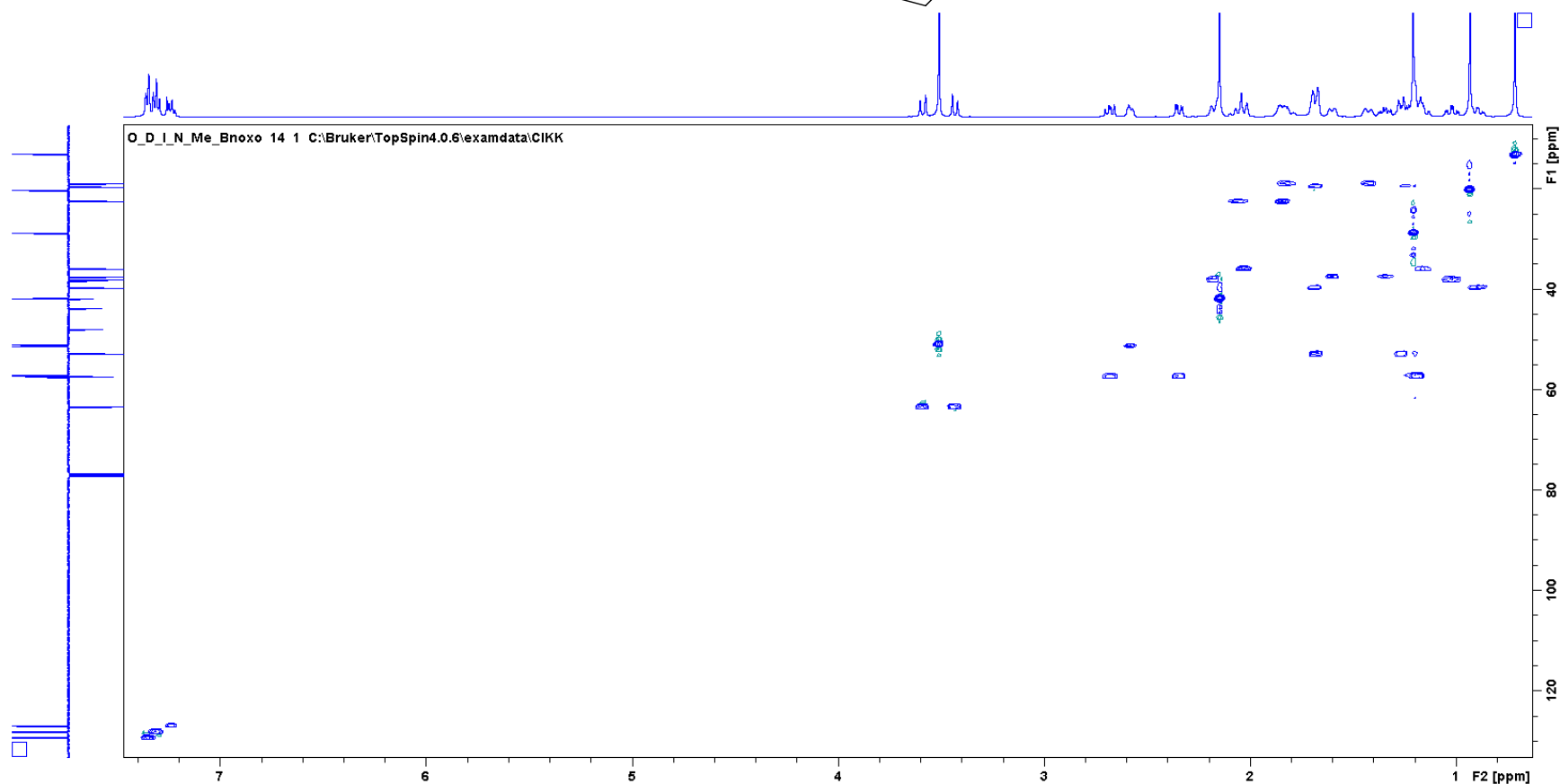
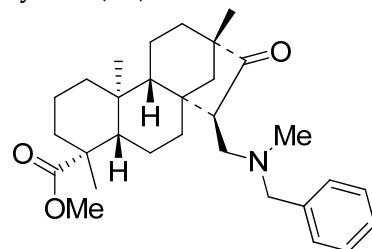
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**15**)



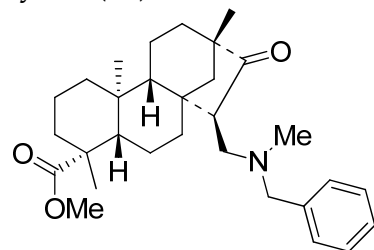
NOESY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**15**)

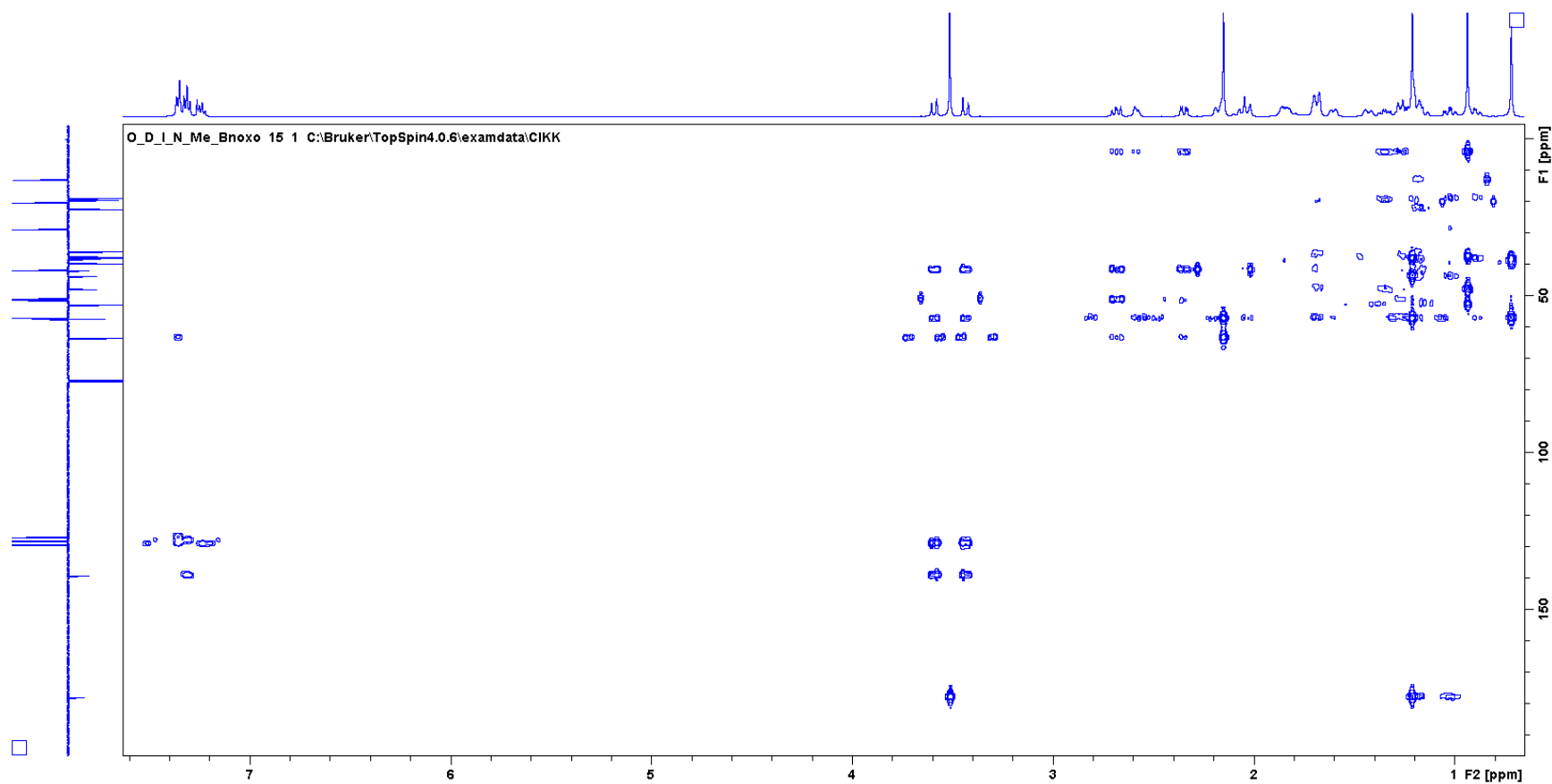


HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**15**)

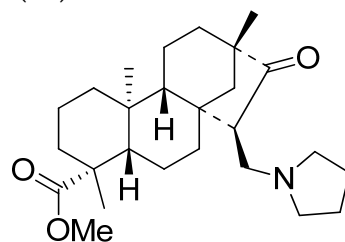


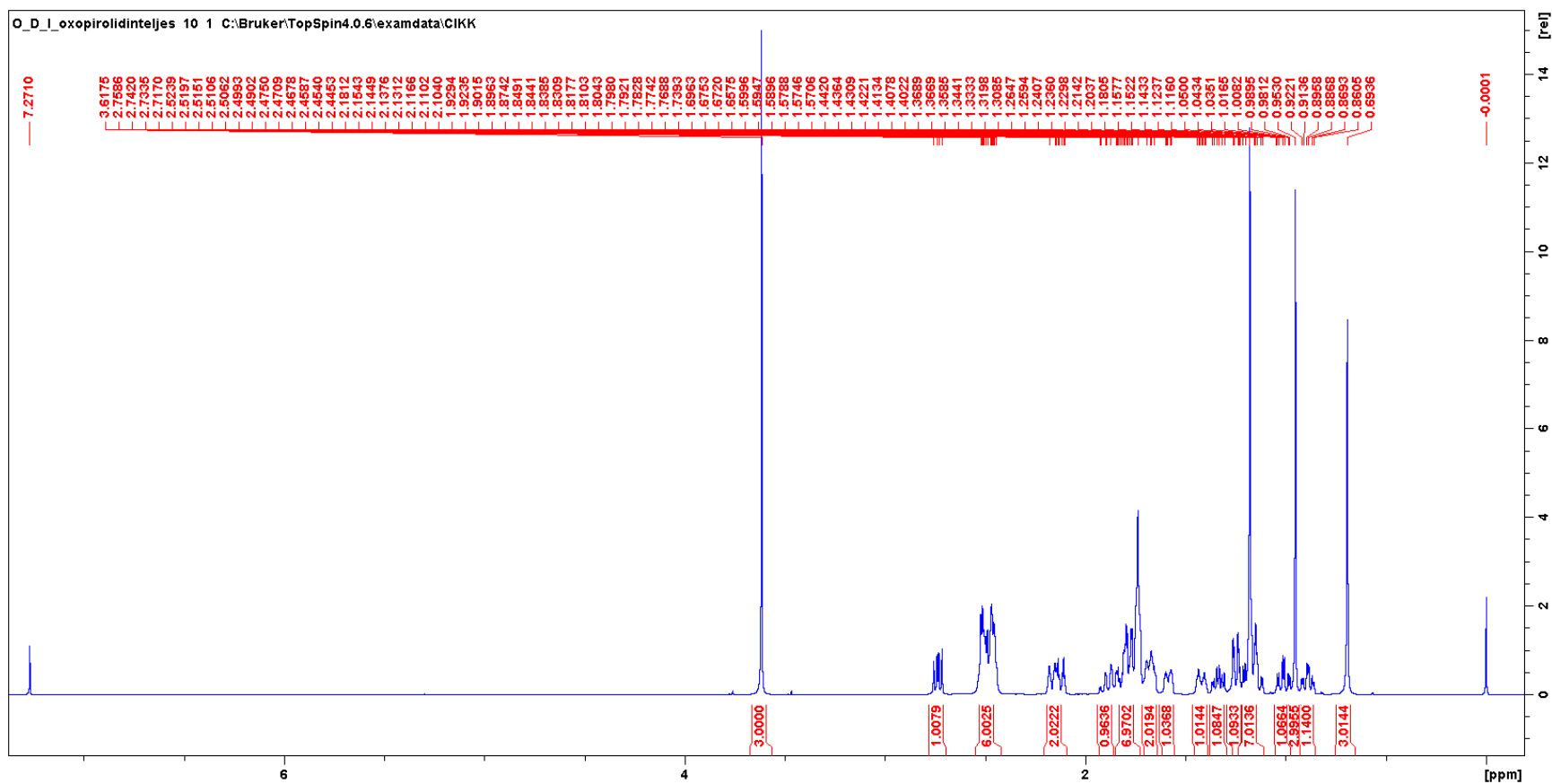
HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**15**)



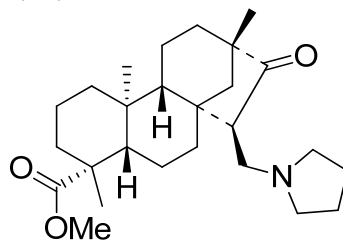


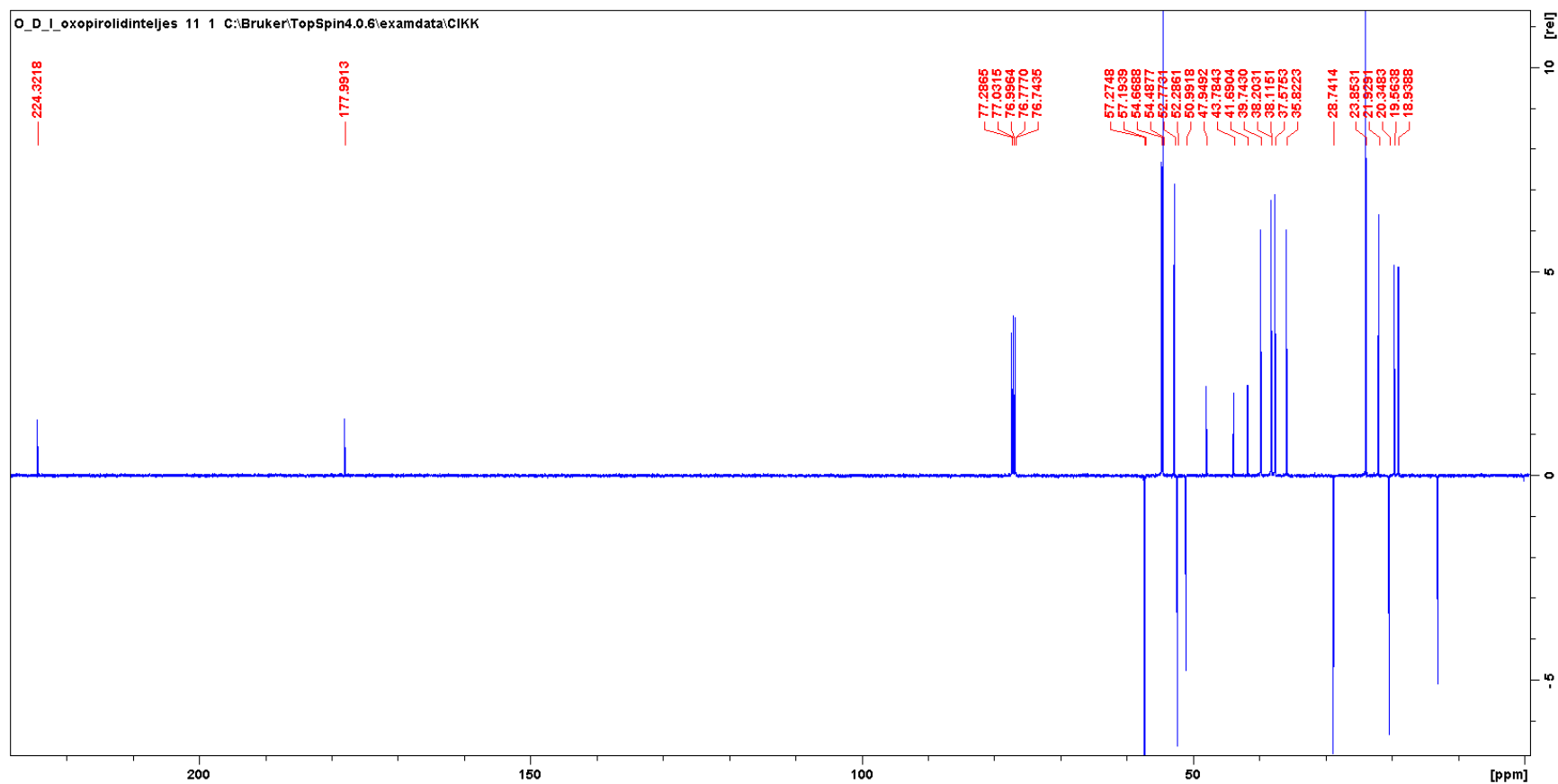
^1H -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-8-oxo-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**16**)



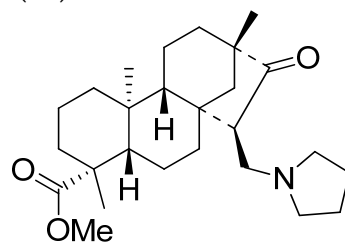


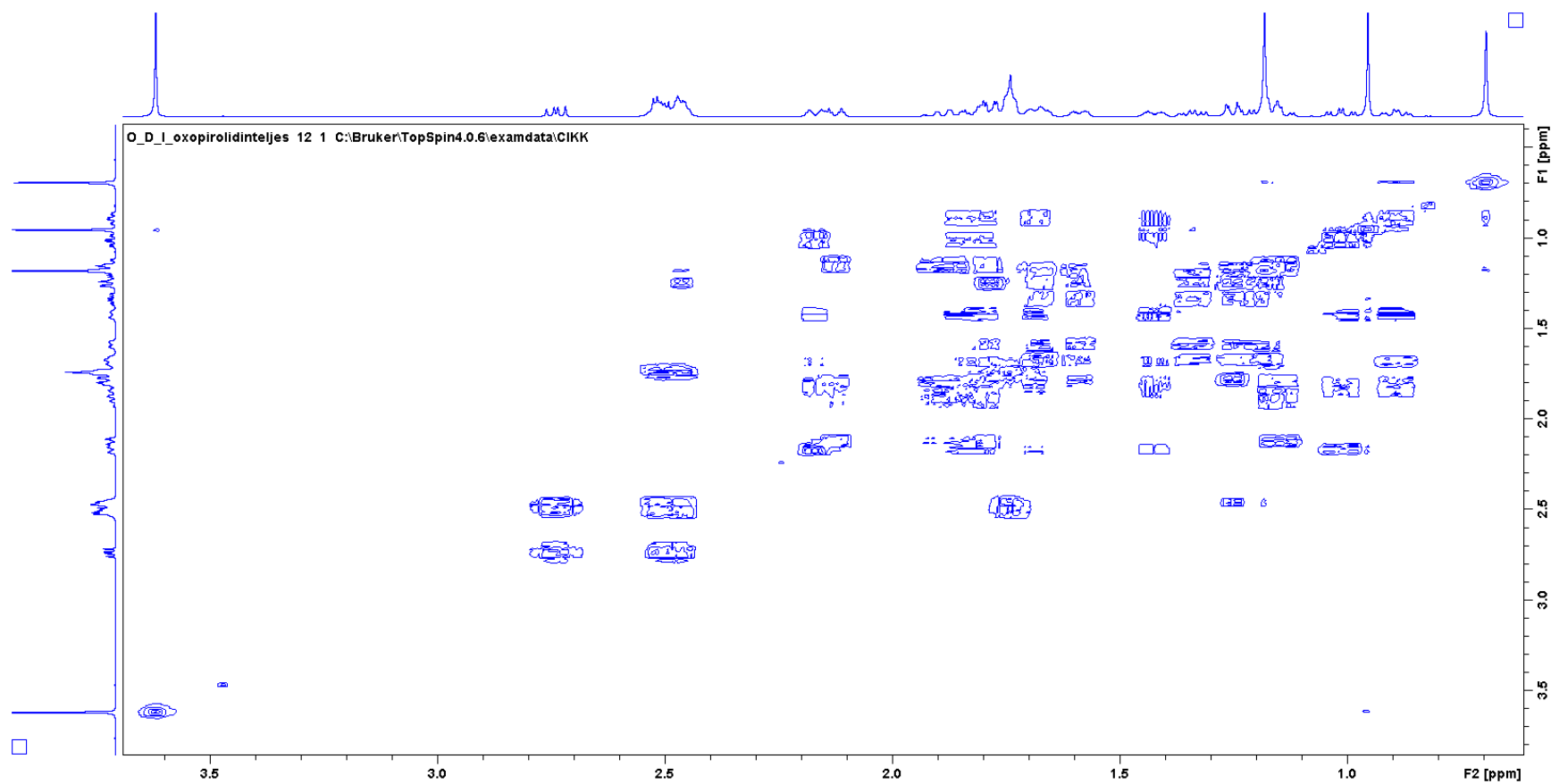
^{13}C -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-8-oxo-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**16**)



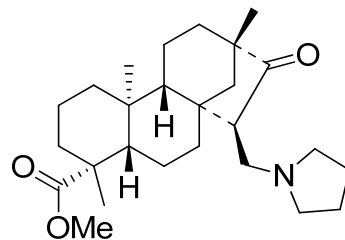


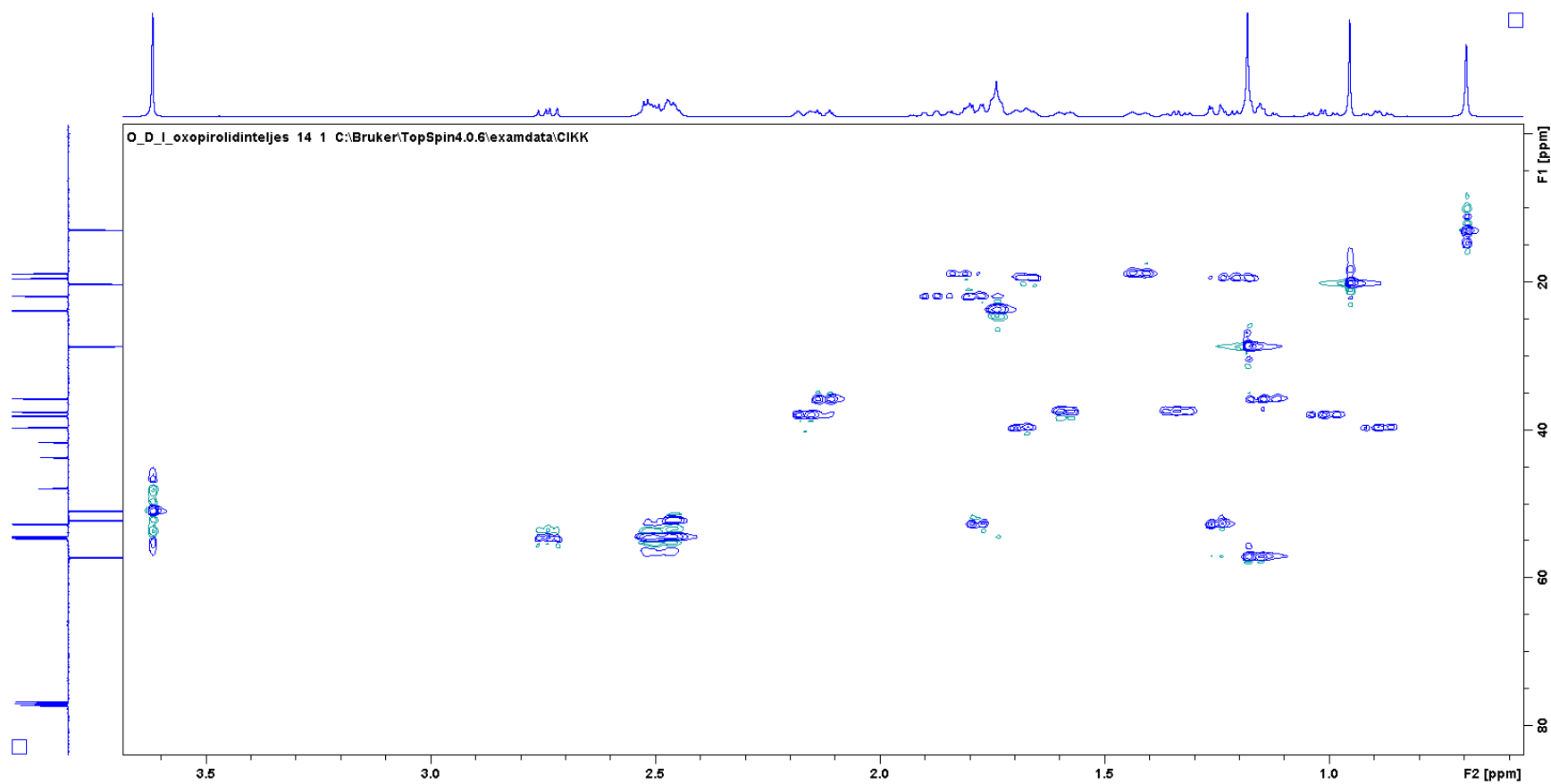
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-8-oxo-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**16**)



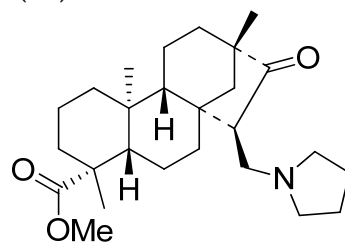


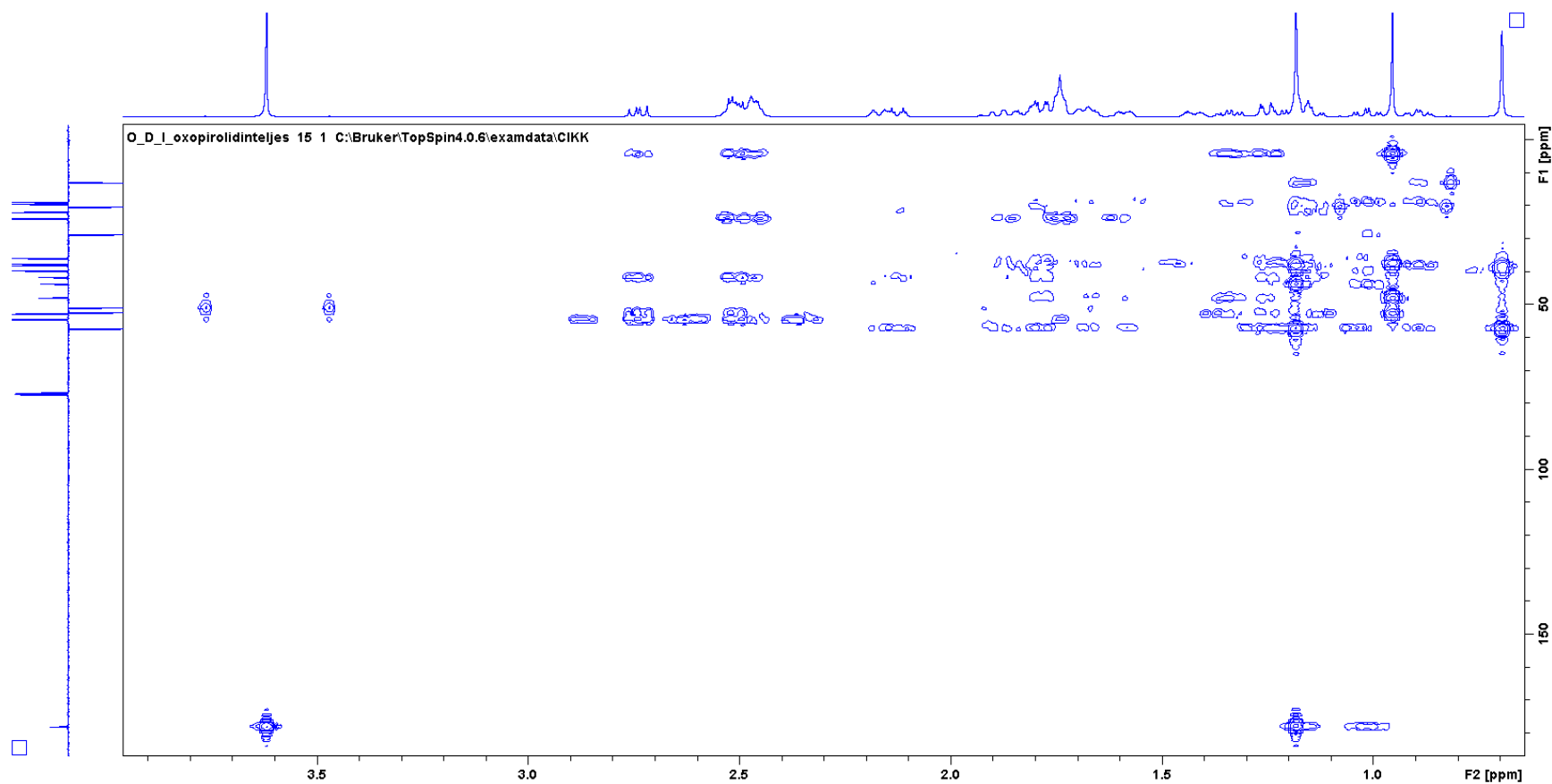
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-8-oxo-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**16**)



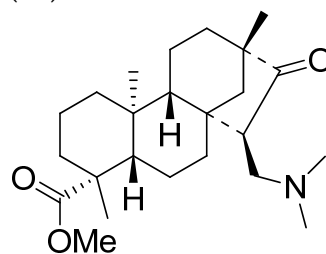


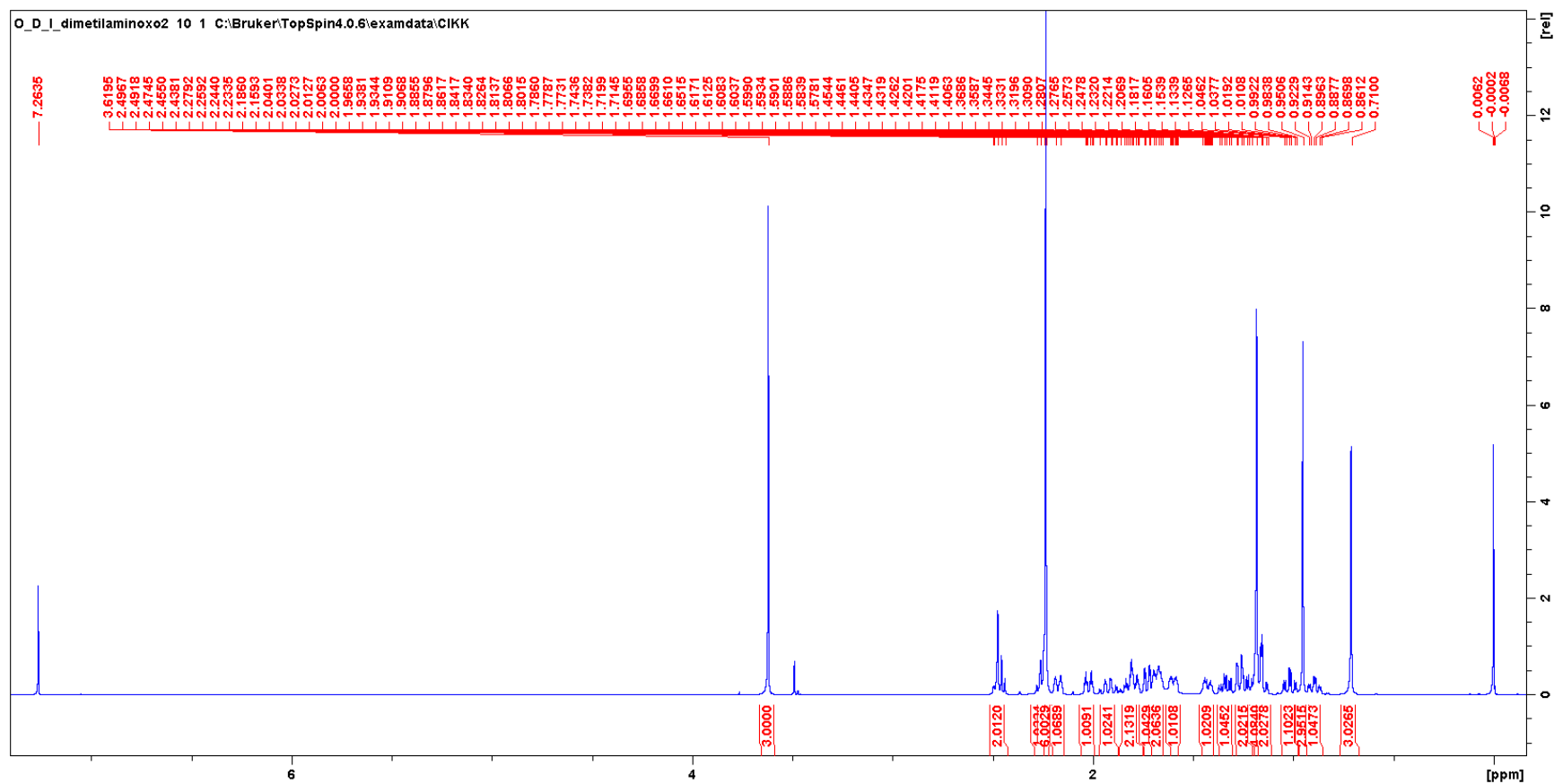
HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 4,9,11*b*-trimethyl-8-oxo-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**16**)



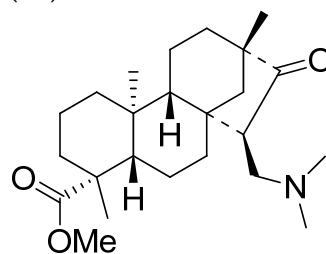


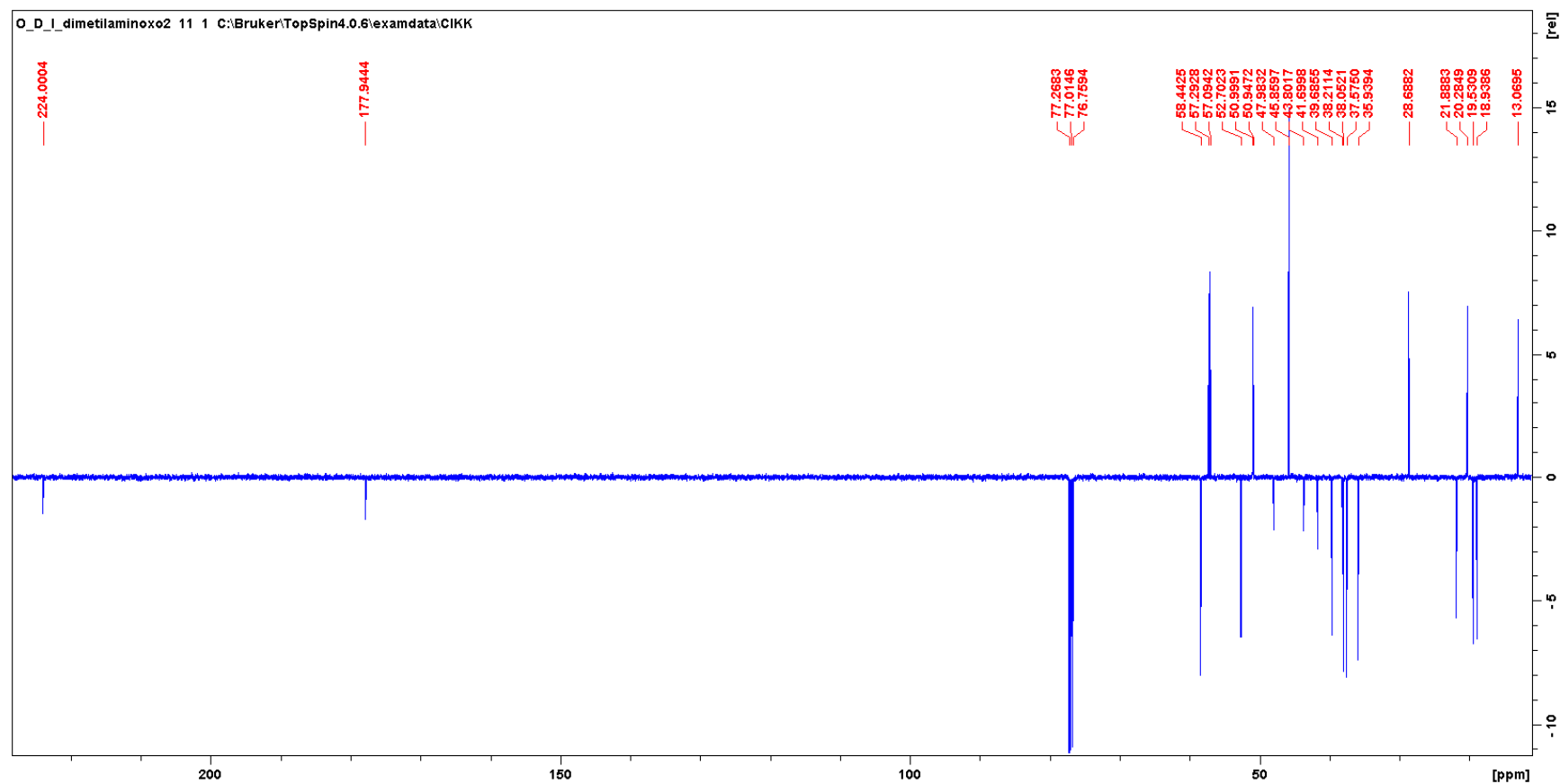
^1H -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**17**)



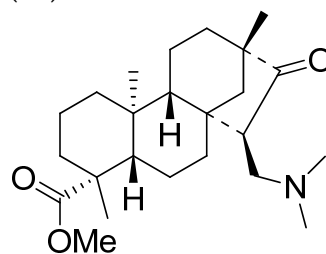


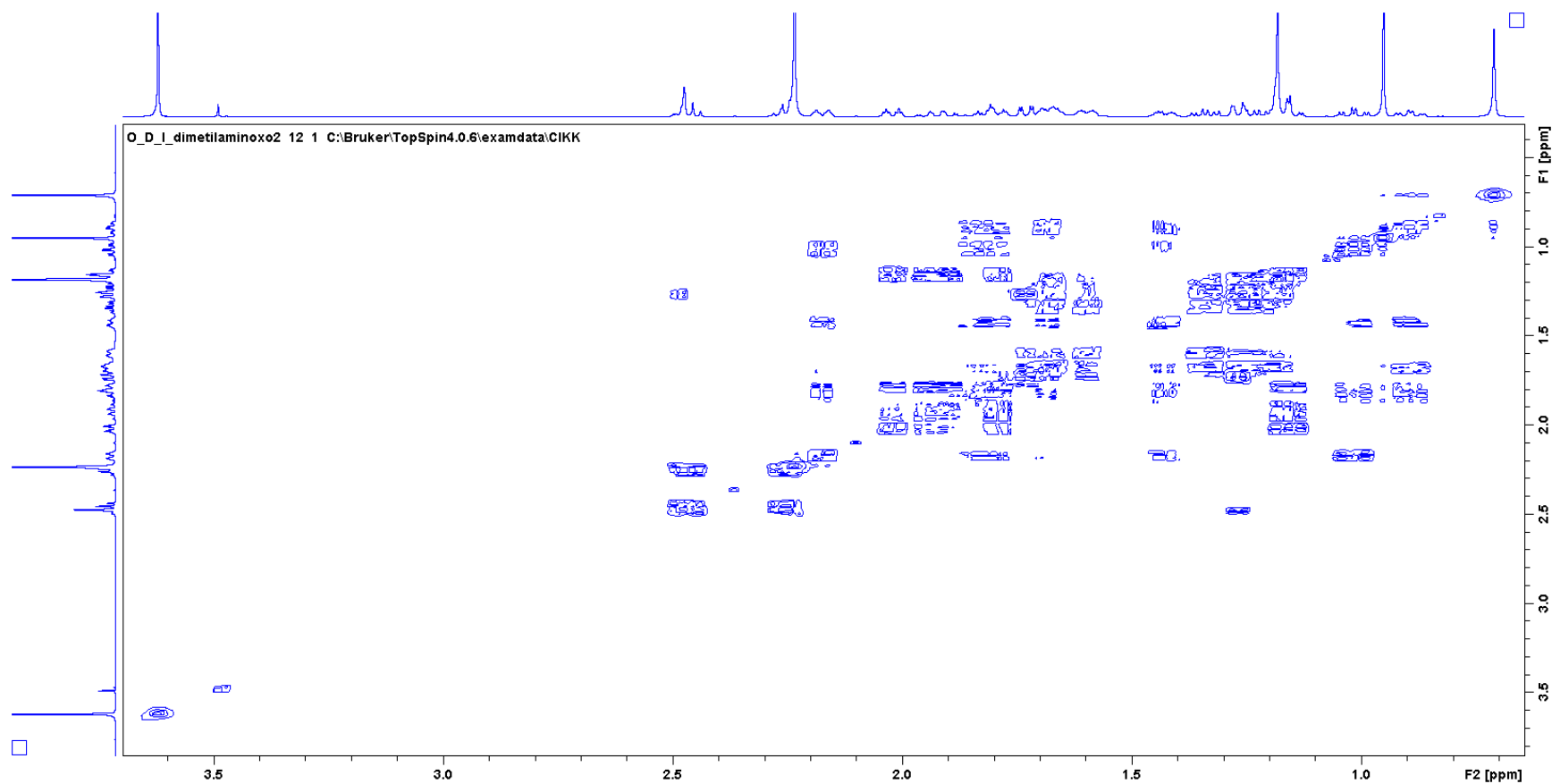
^{13}C -NMR of compound (4*R*,6*S*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**17**)



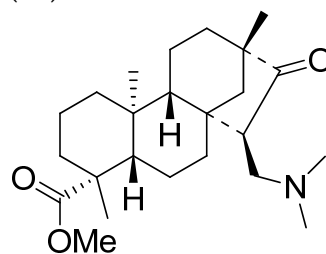


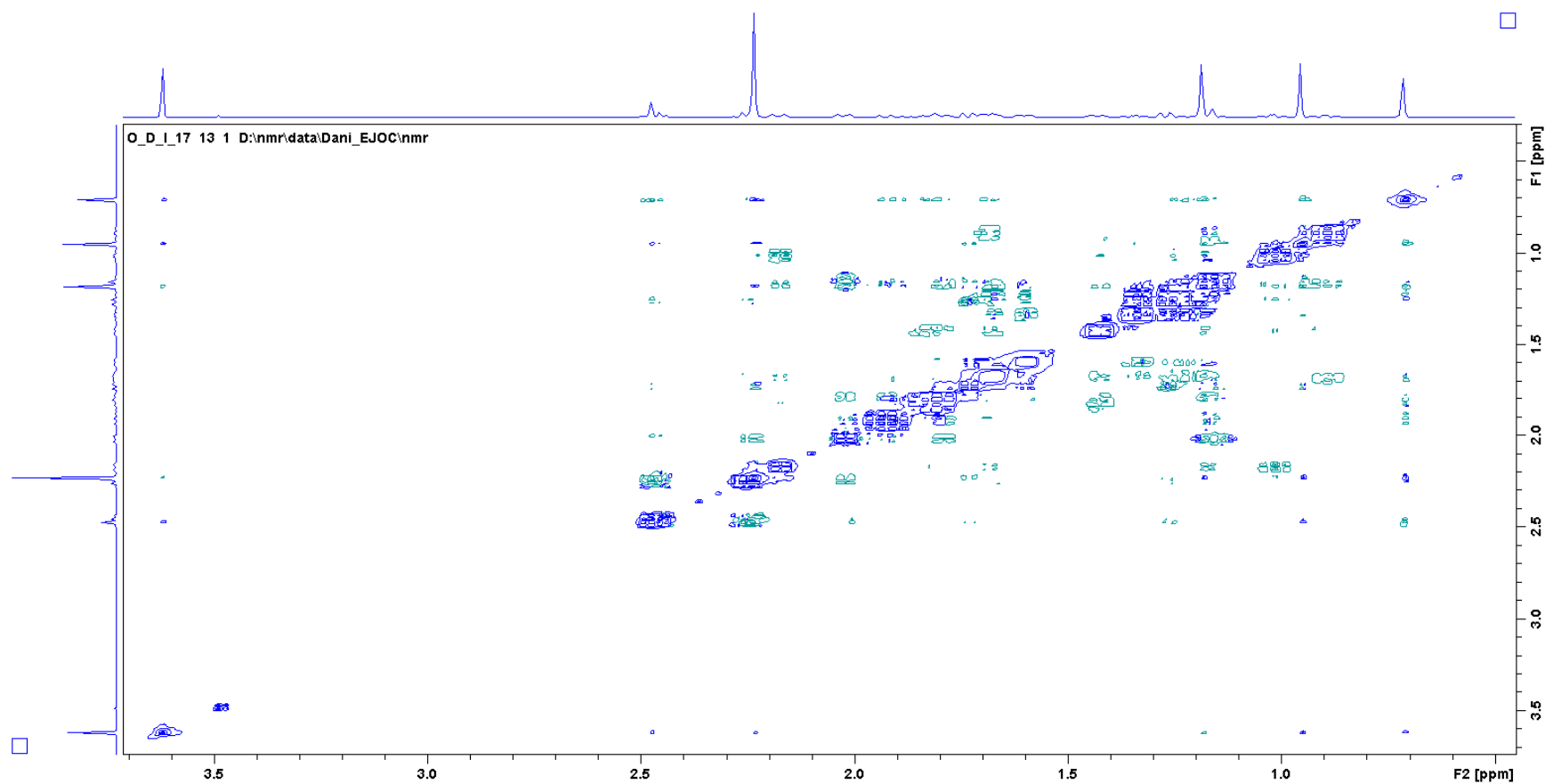
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**17**)



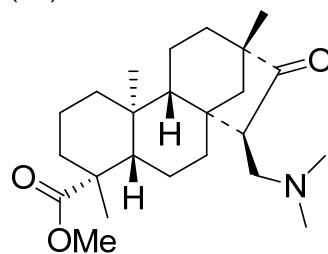


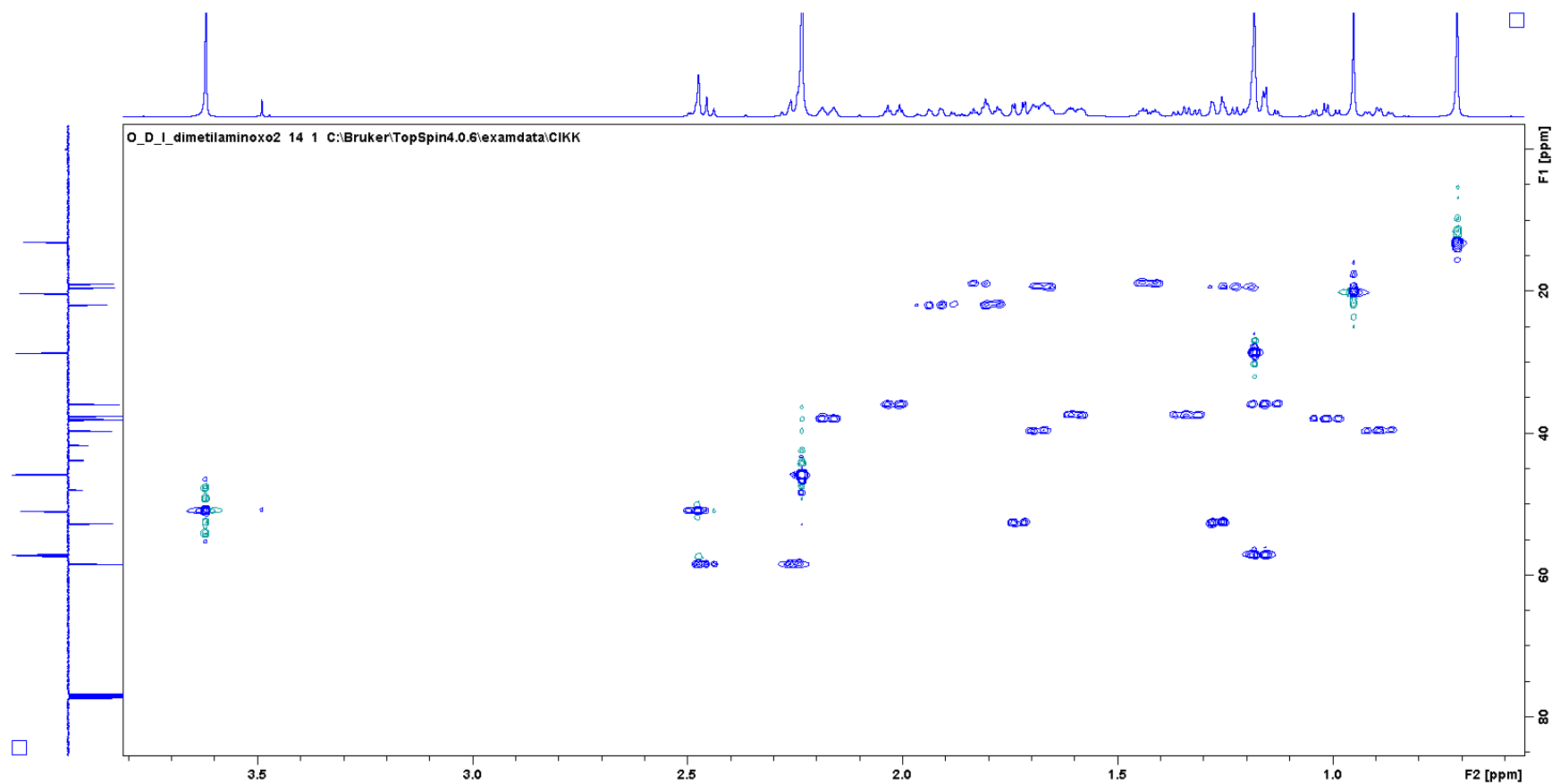
NOESY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**17**)



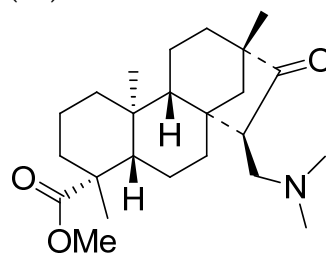


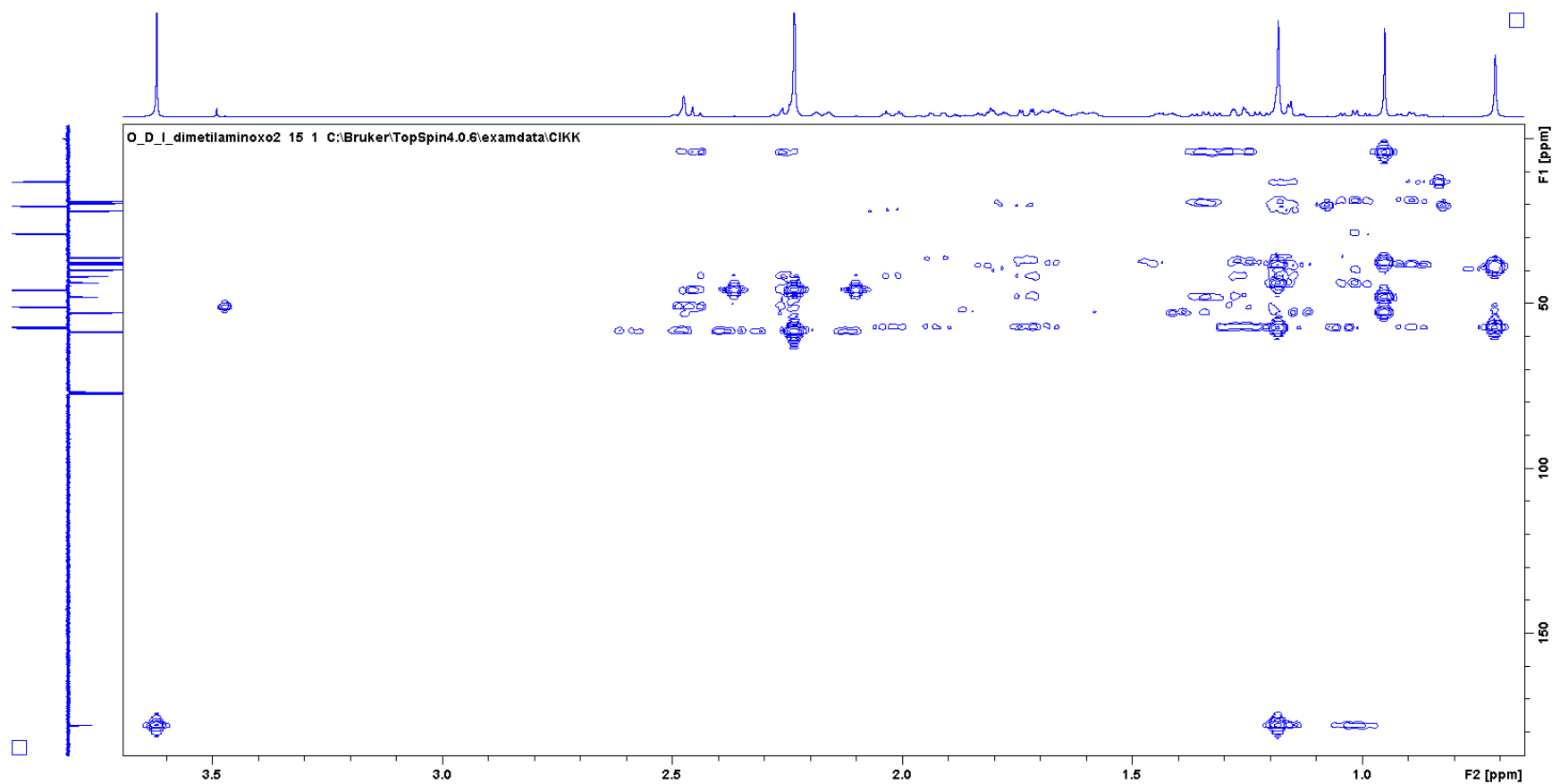
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**17**)



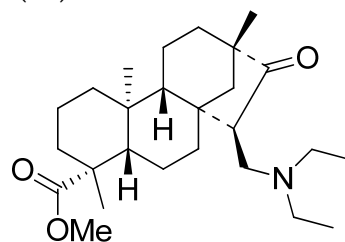


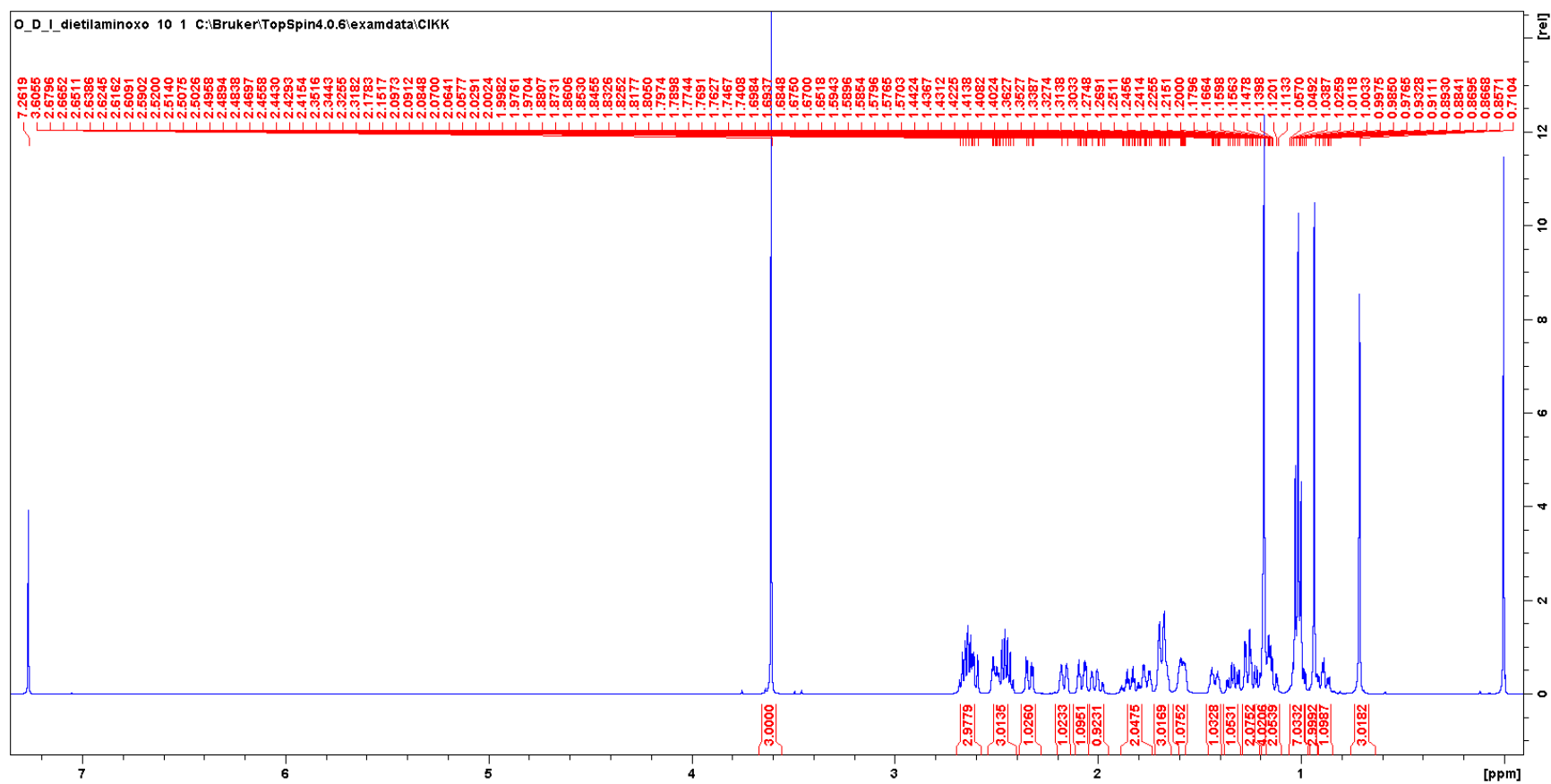
HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**17**)



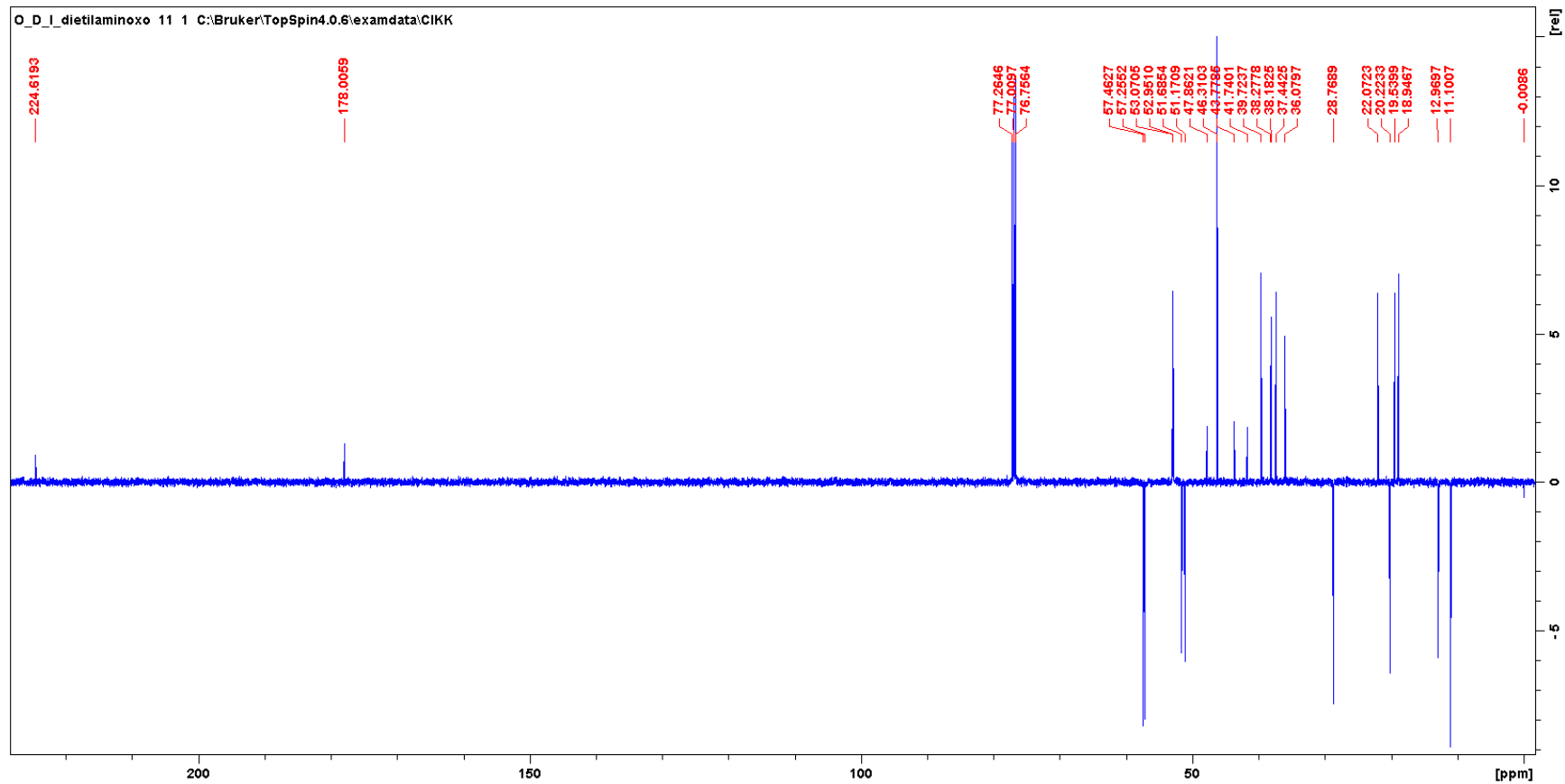
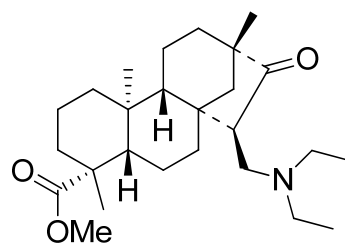


^1H -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**18**)

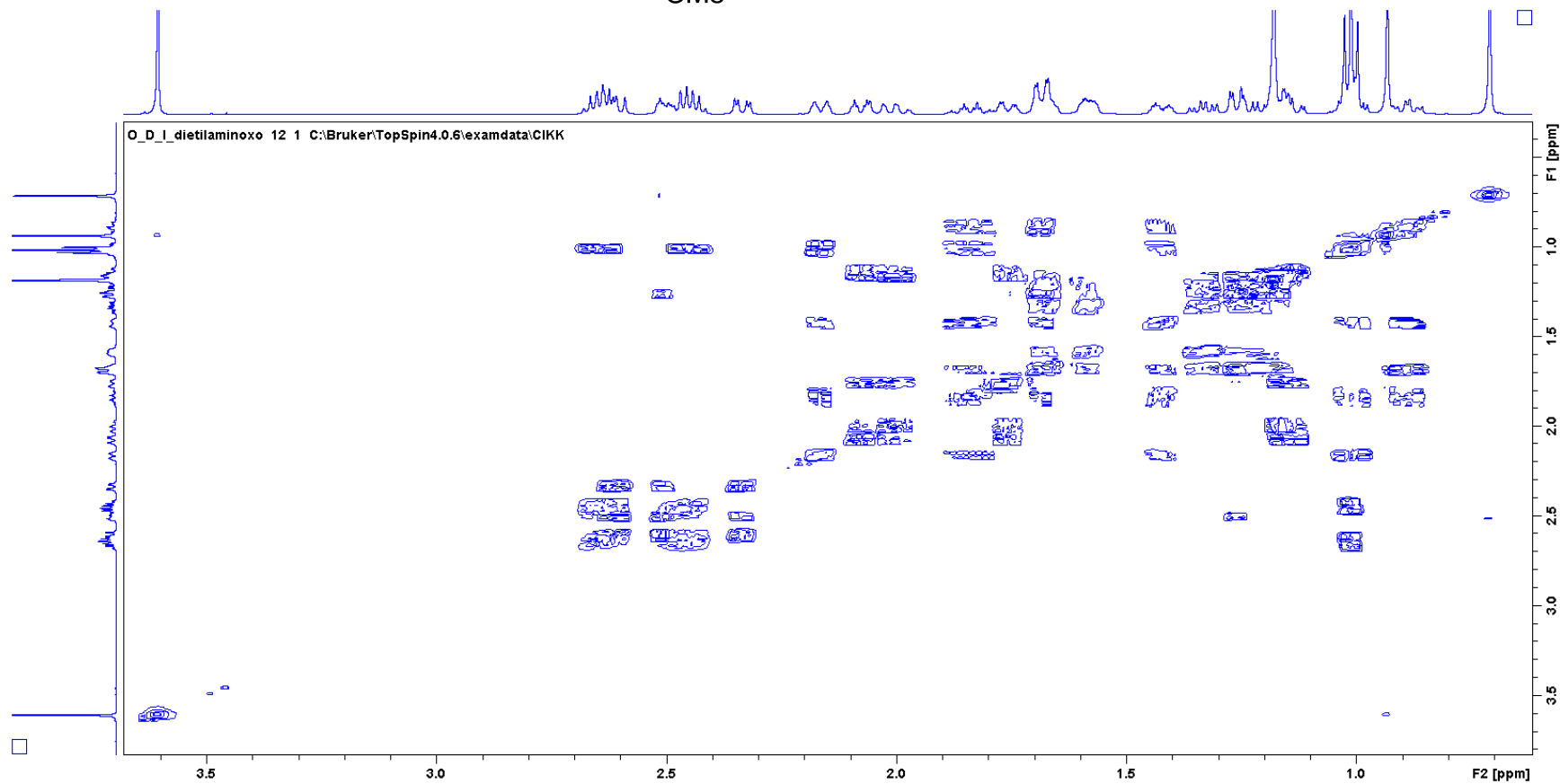
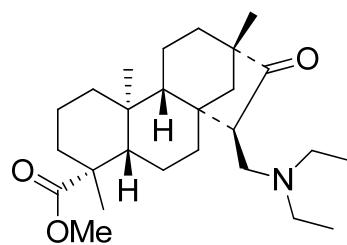




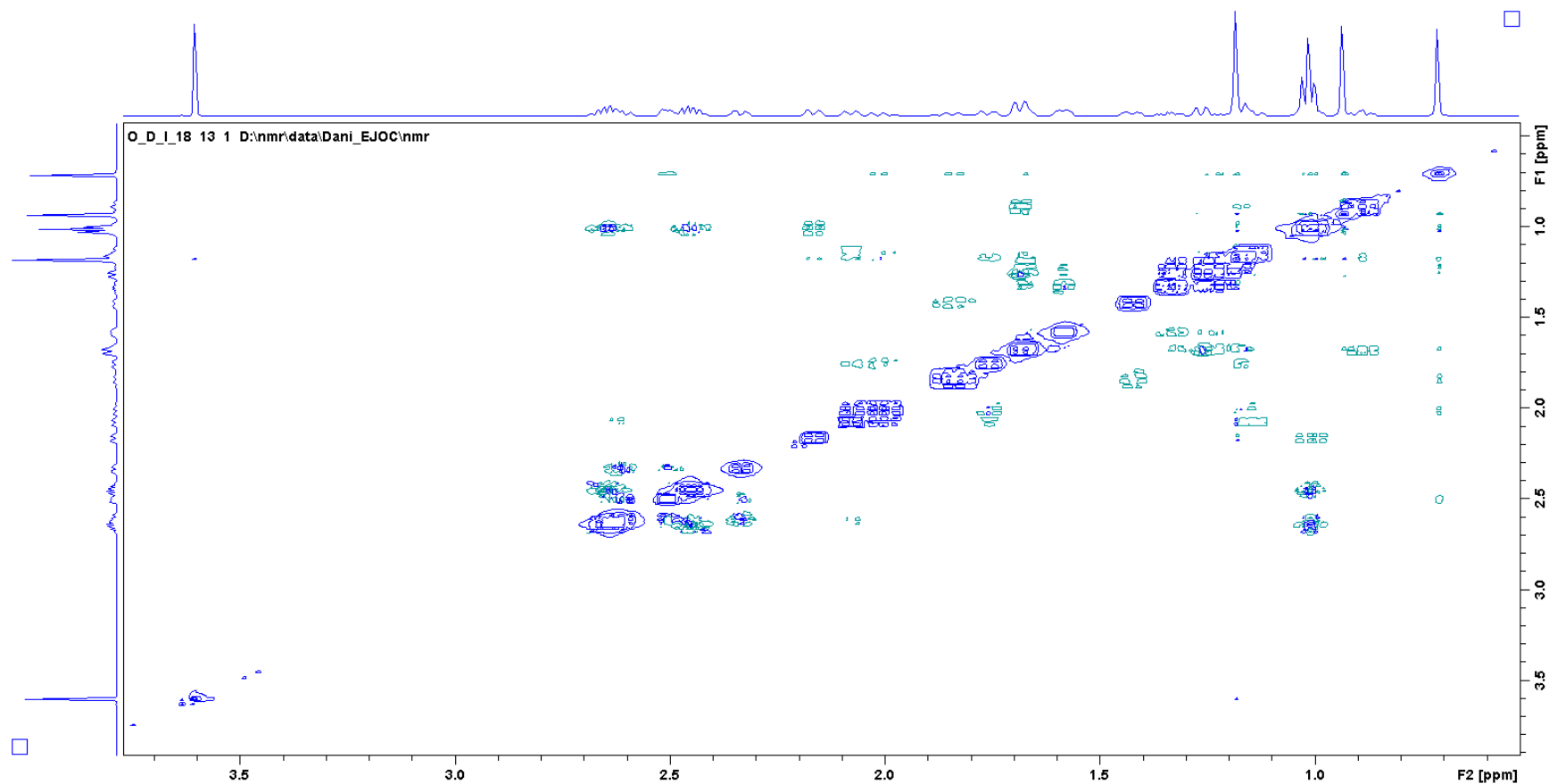
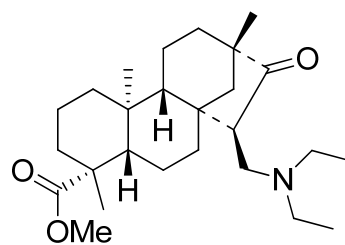
^{13}C -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**18**)



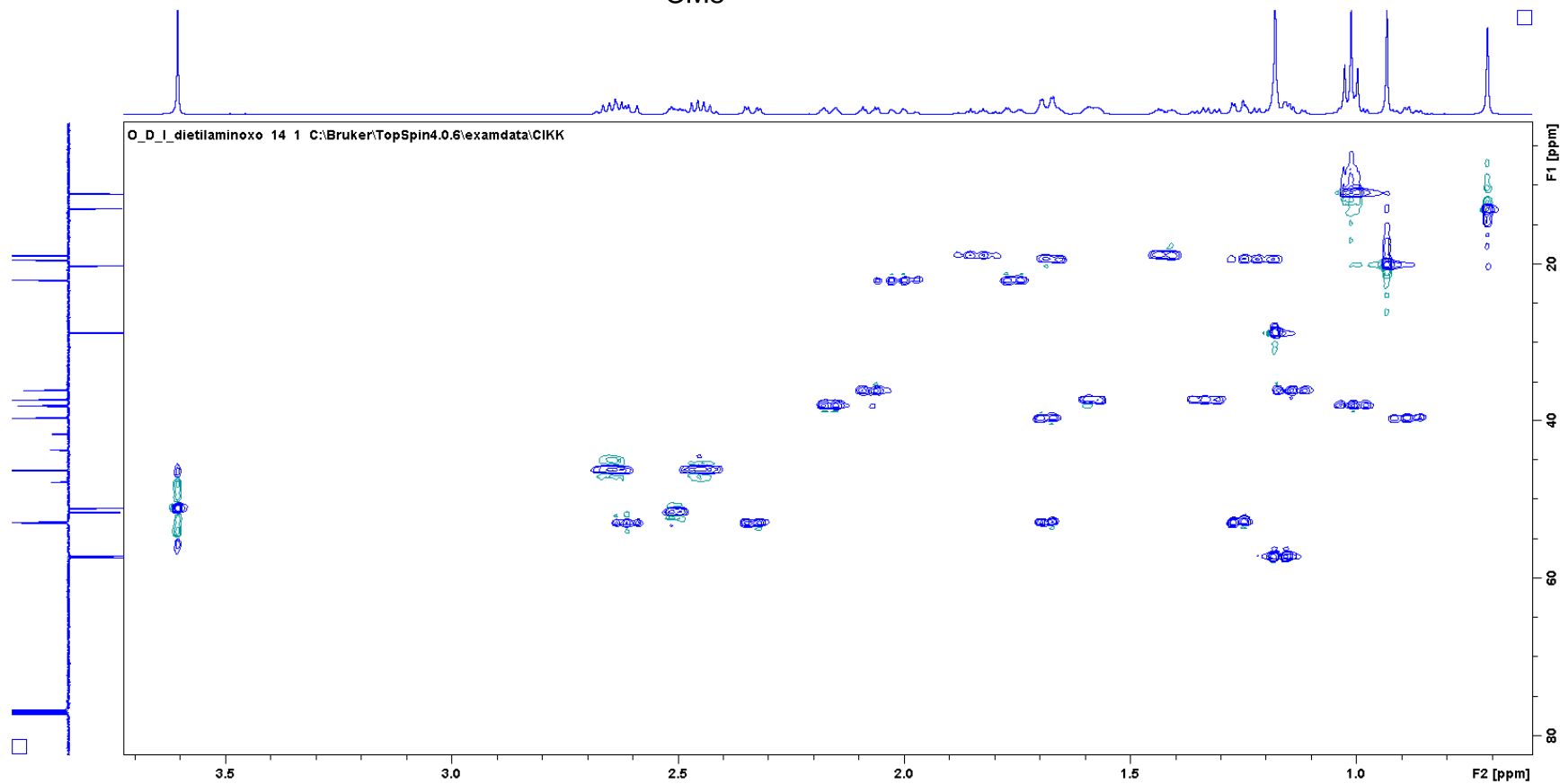
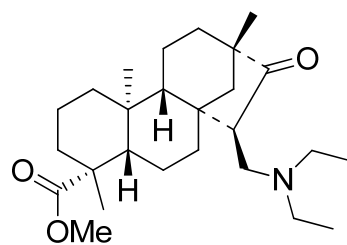
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**18**)



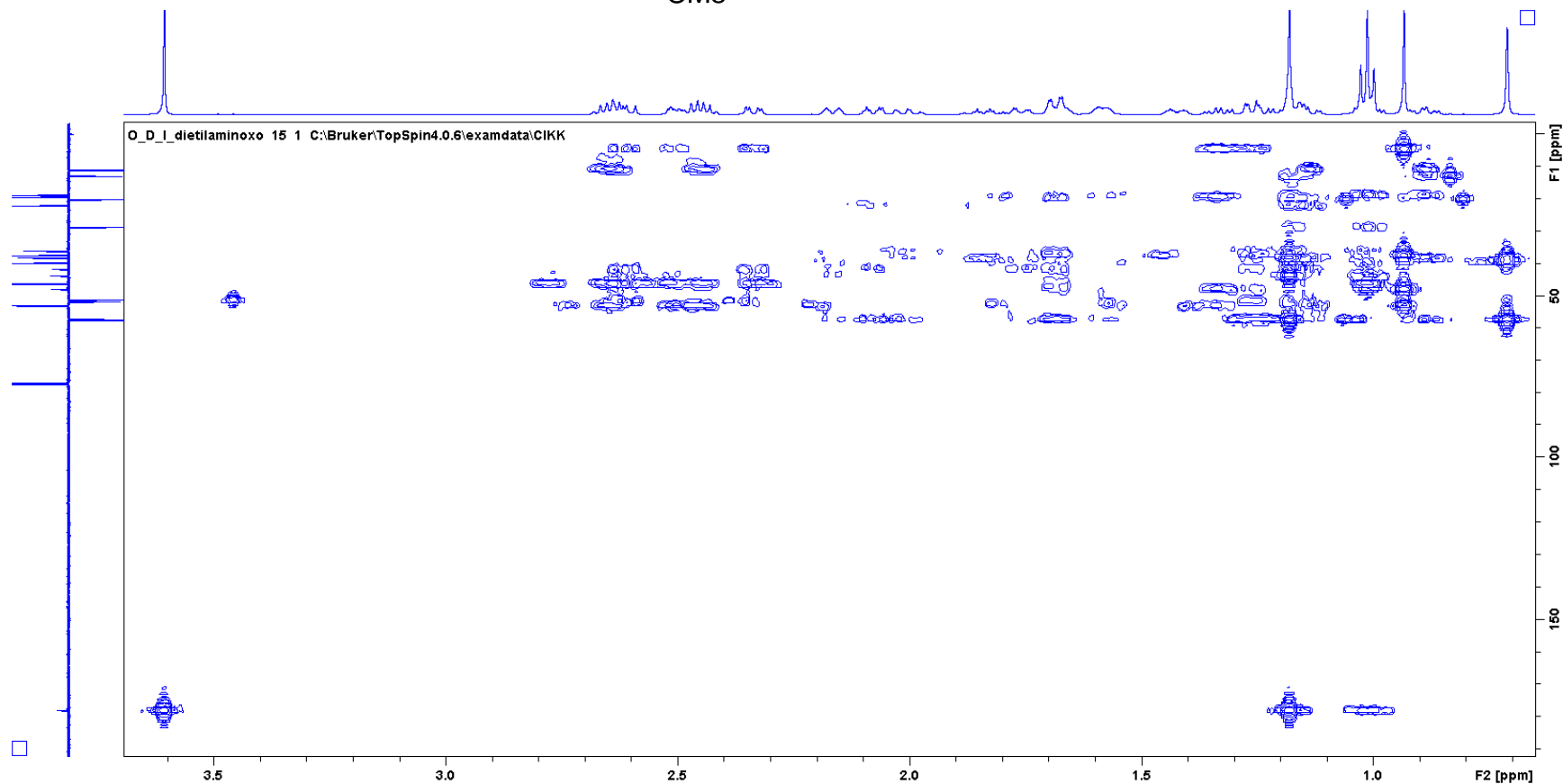
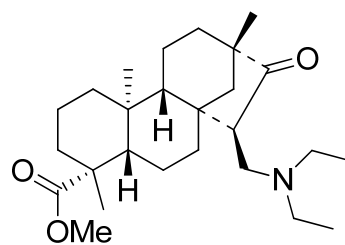
NOESY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**18**)



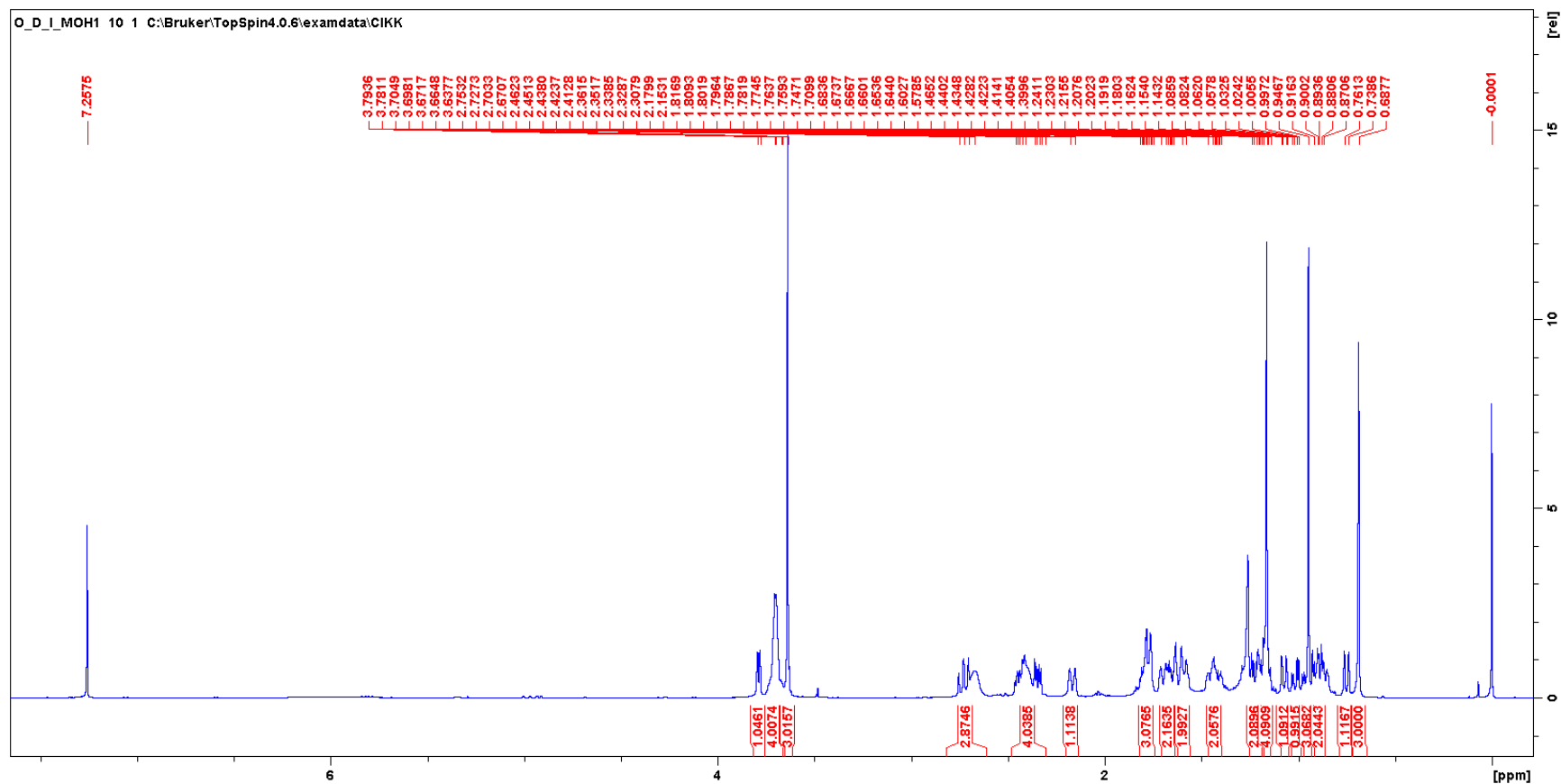
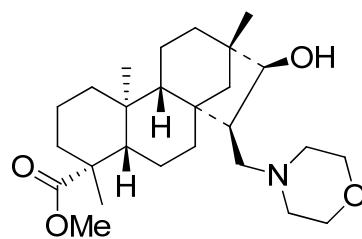
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**18**)



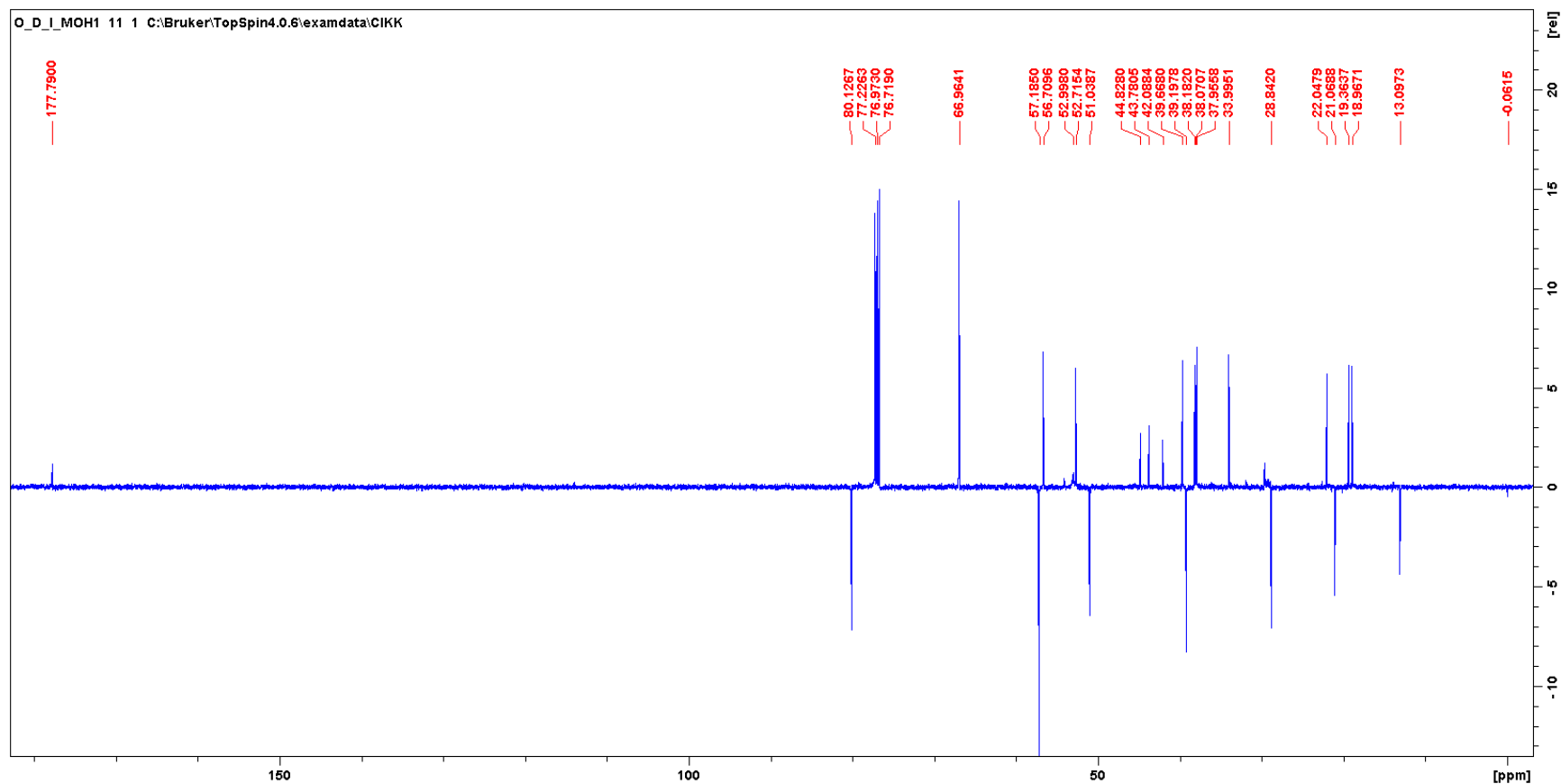
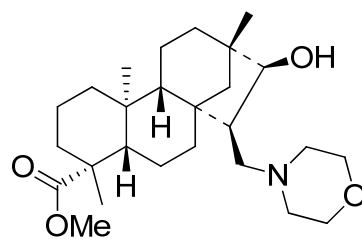
HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-4,9,11*b*-trimethyl-8-oxotetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**18**)



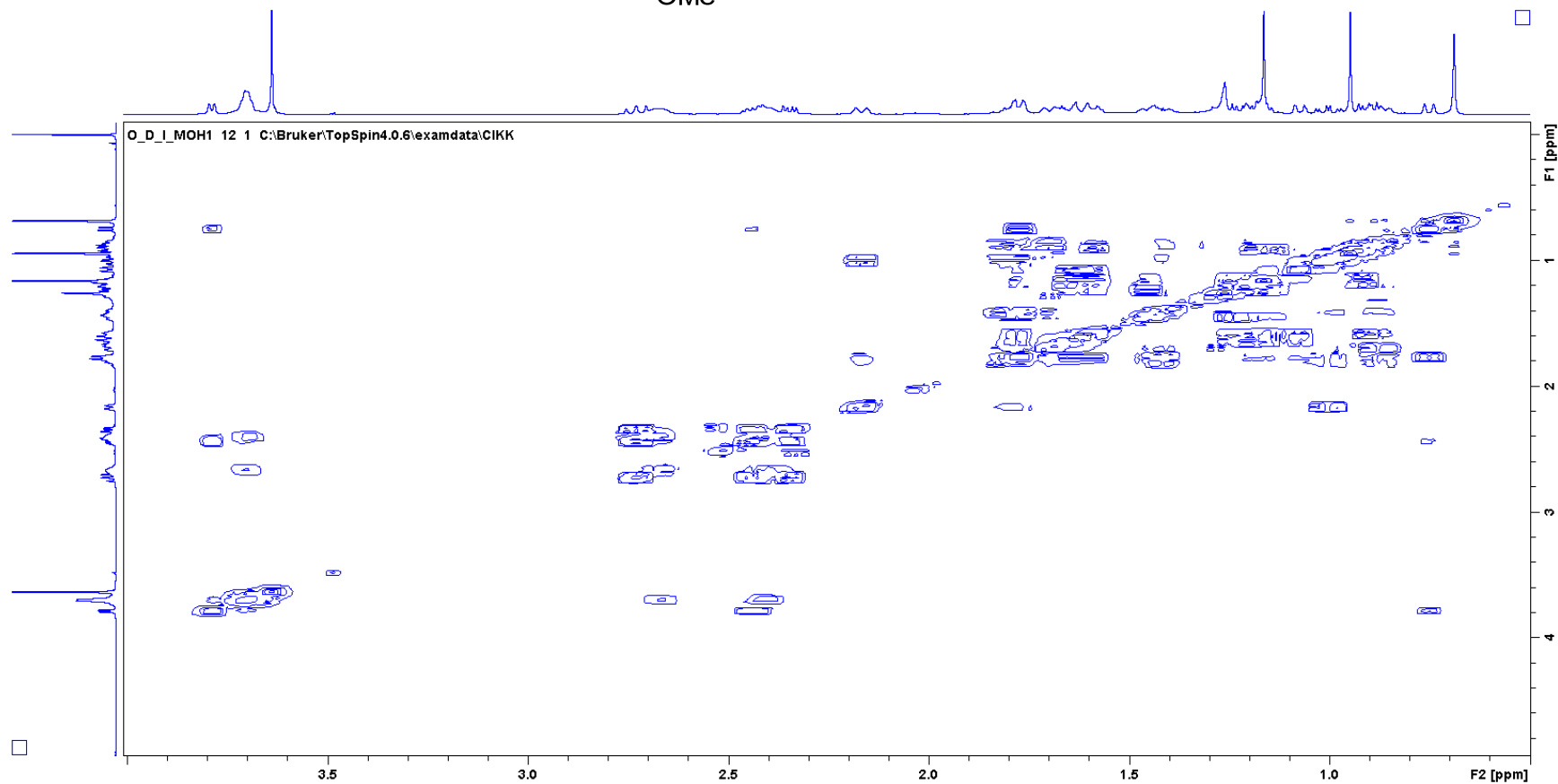
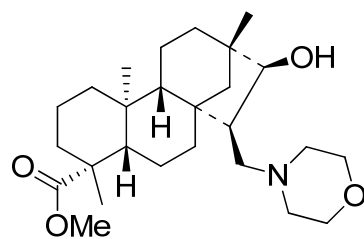
^1H -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19a**)



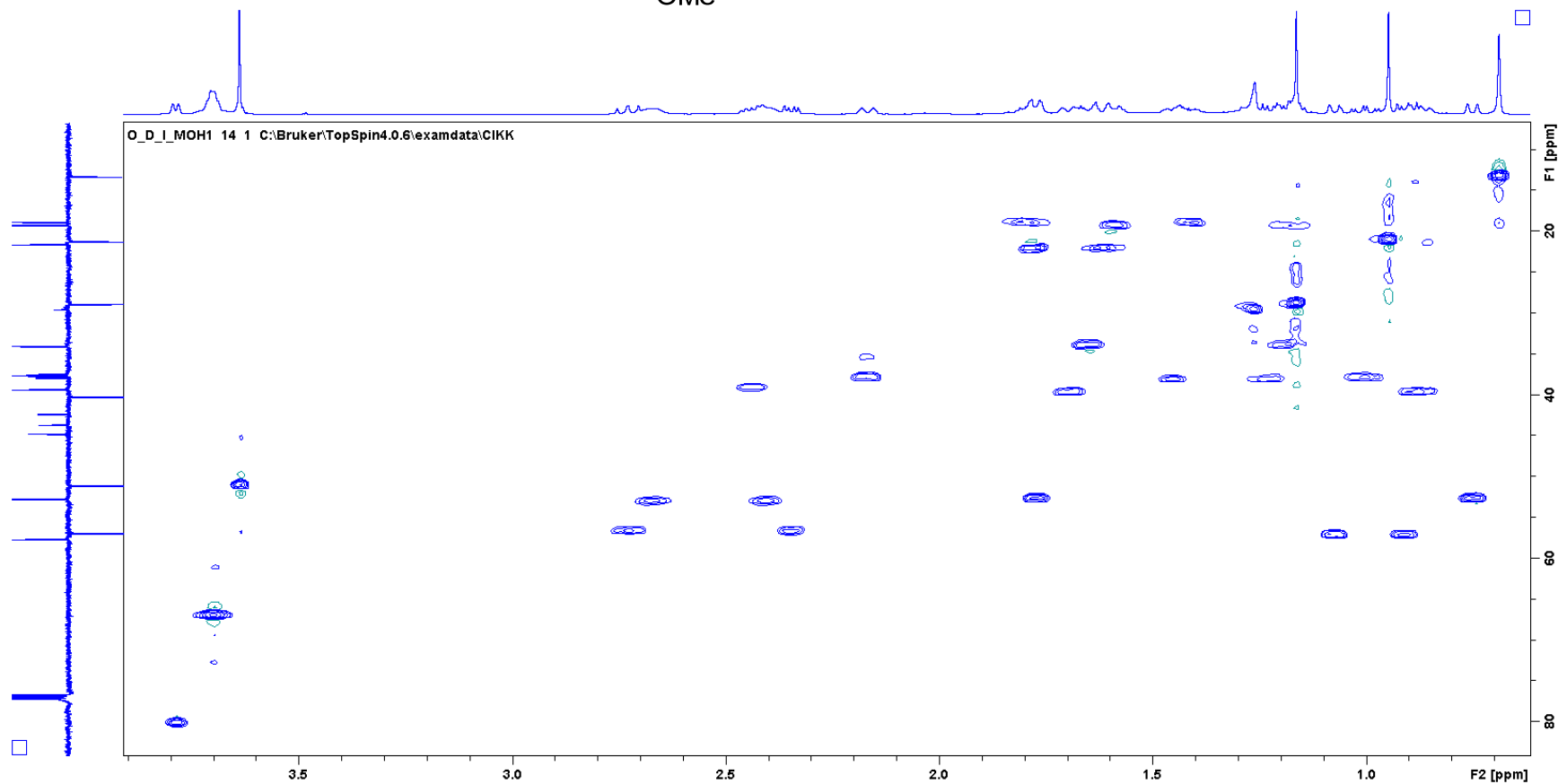
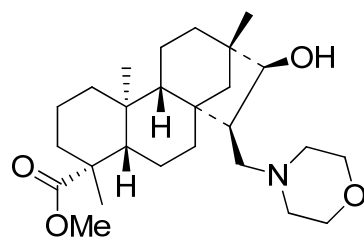
^{13}C -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19a**)



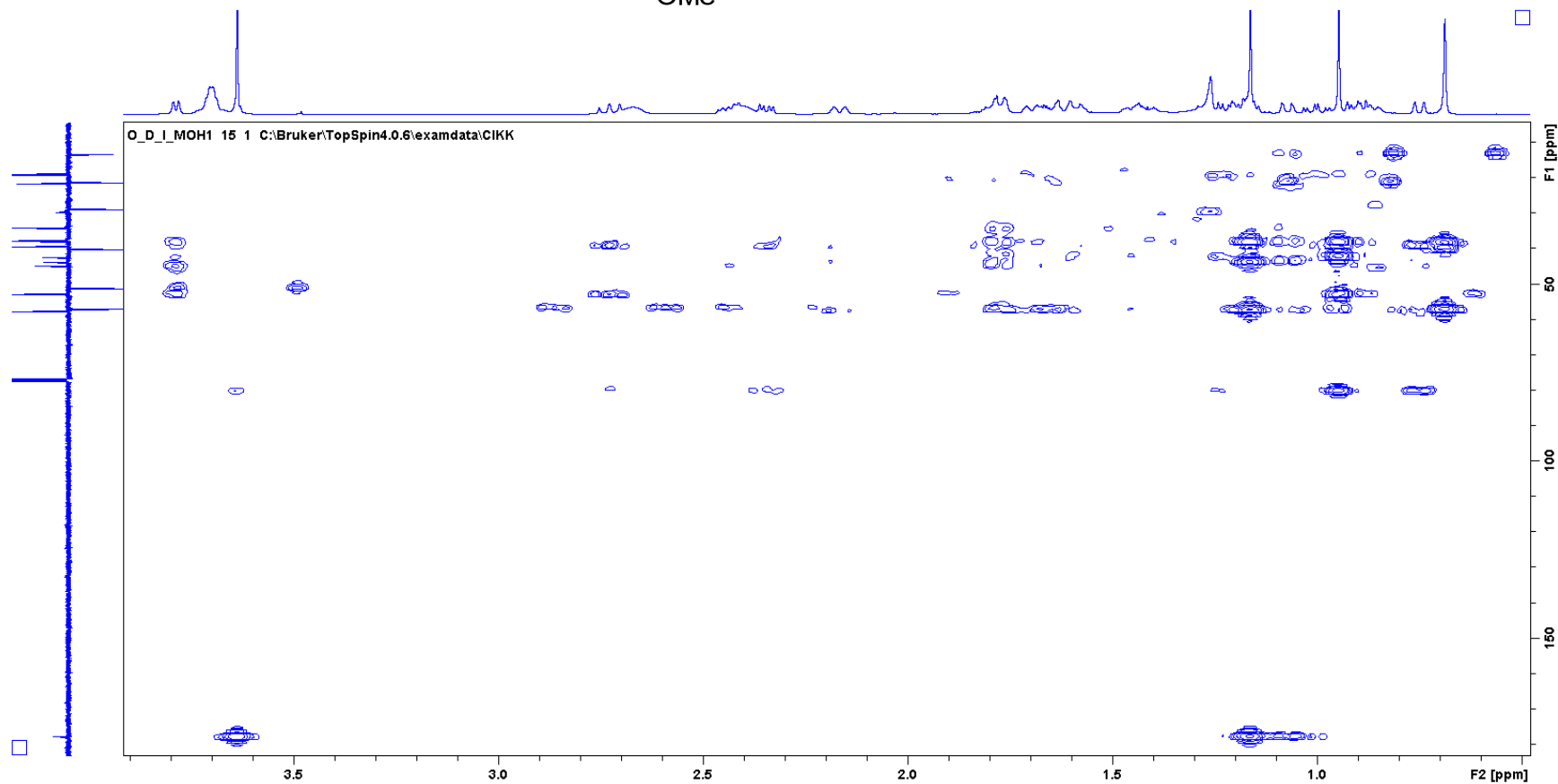
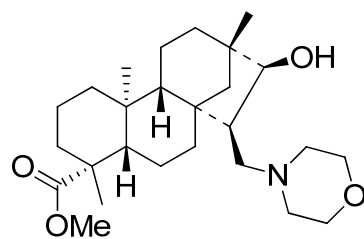
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19a**)



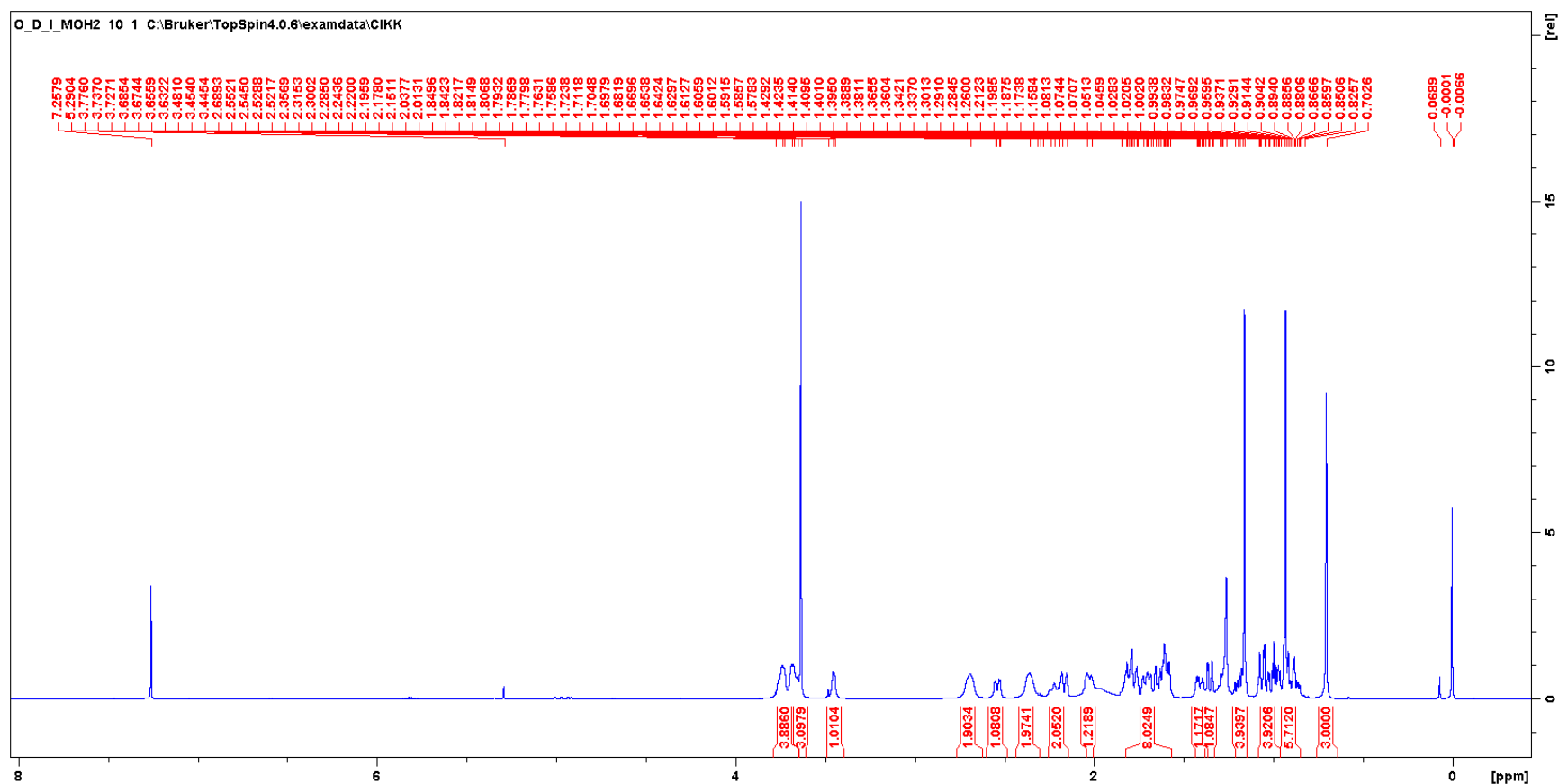
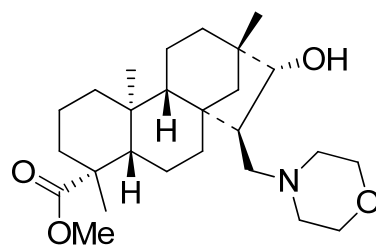
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19a**)



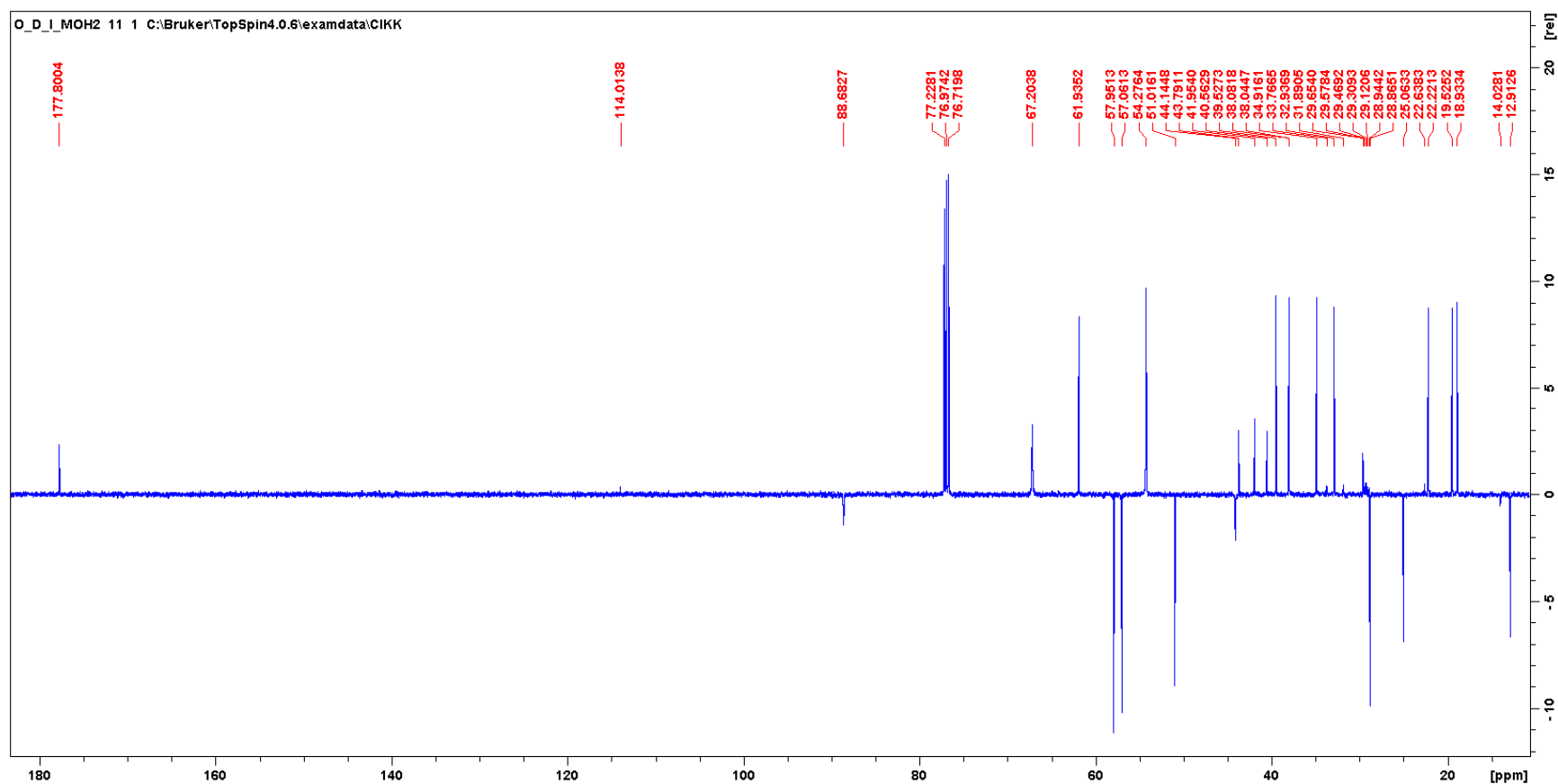
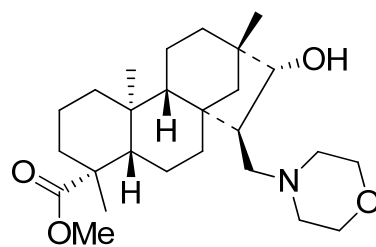
HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19a**)



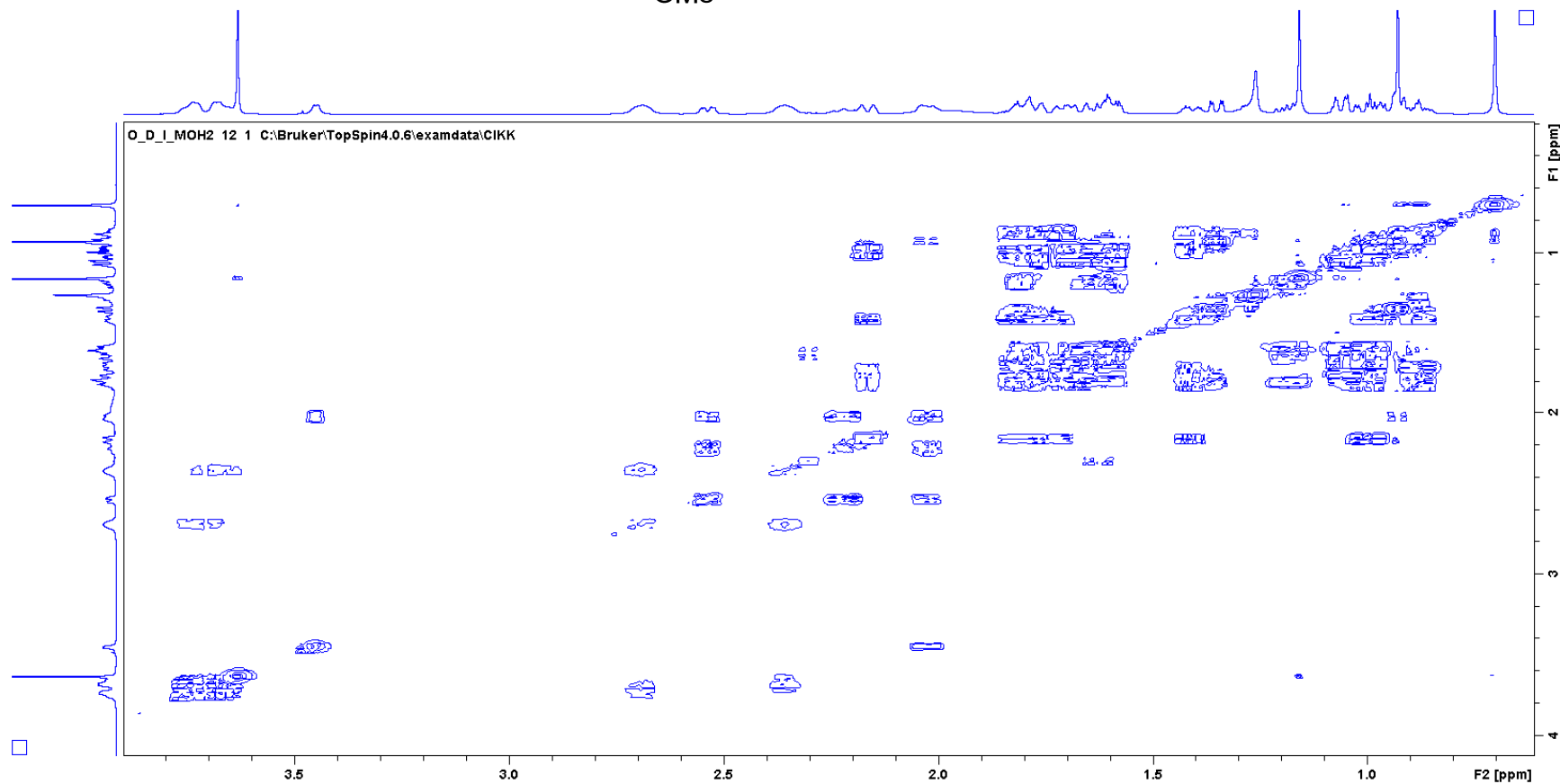
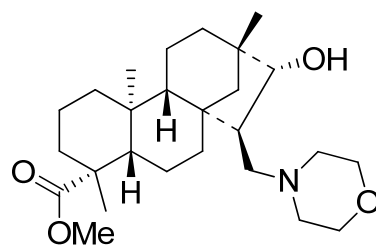
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19b**)



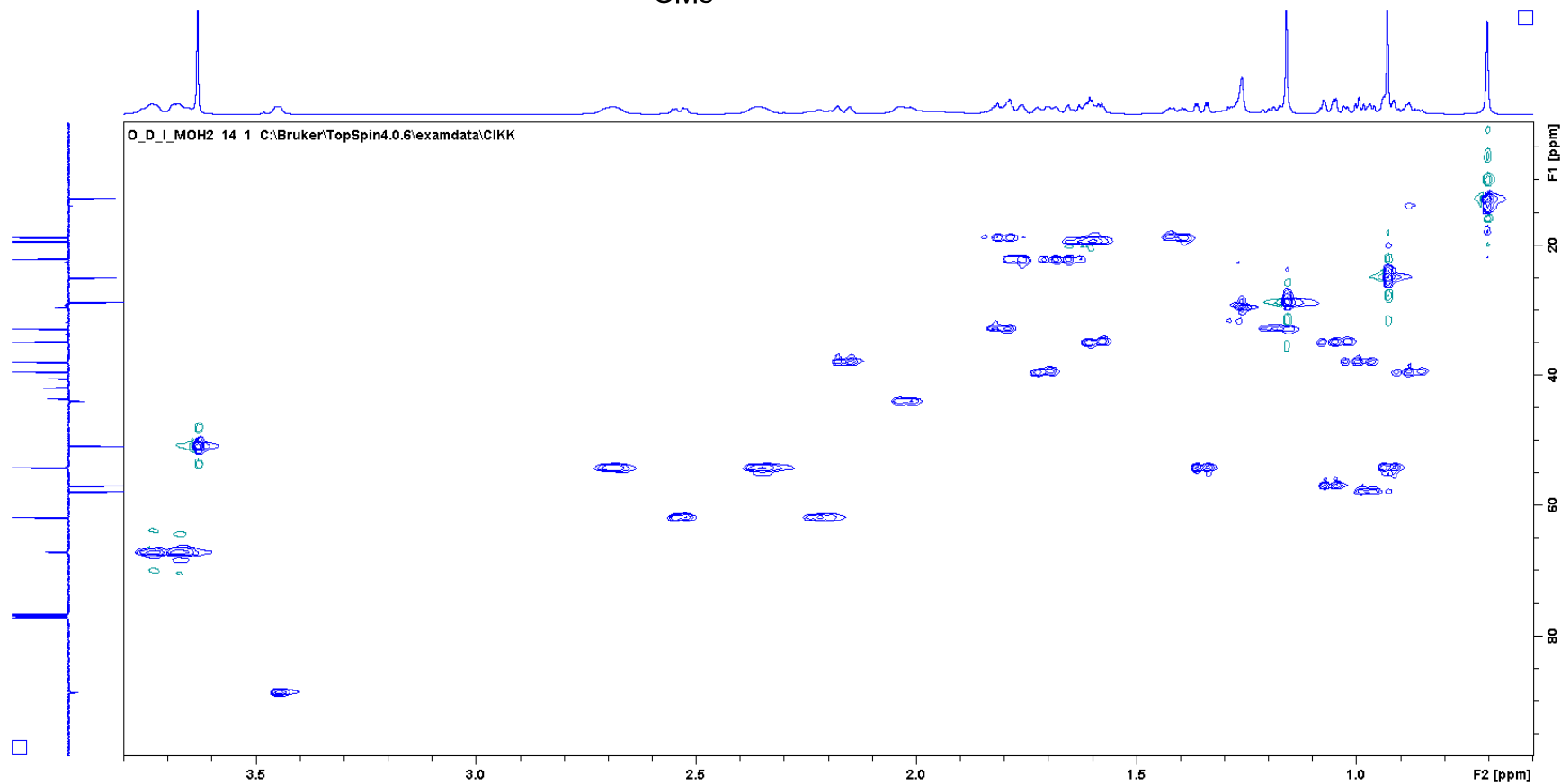
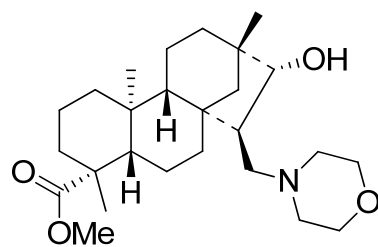
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19b**)



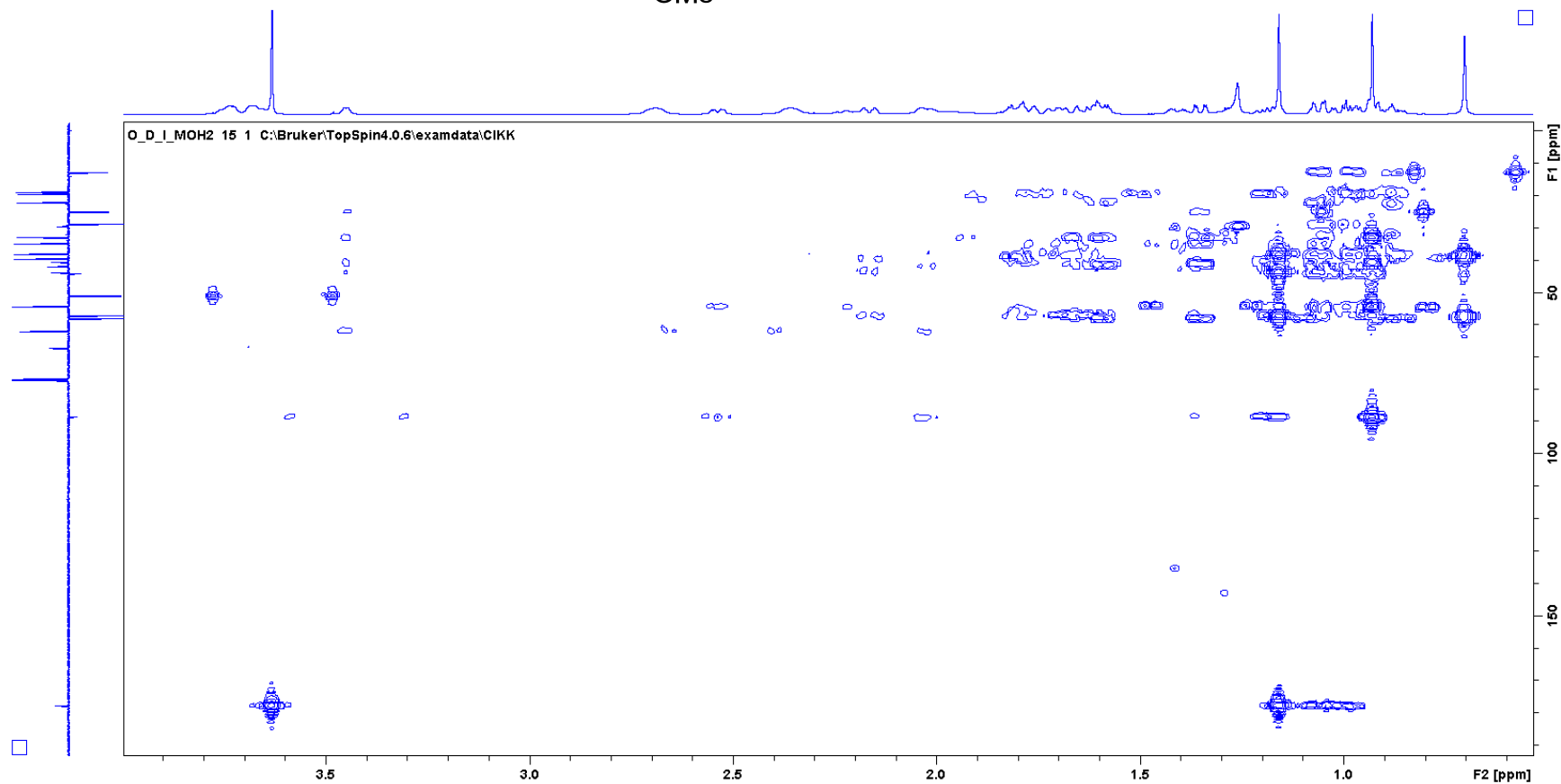
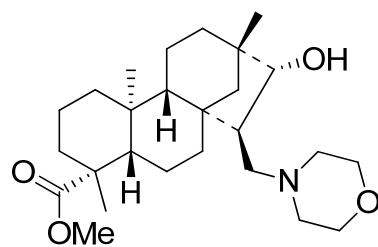
COSY of compound (4R,6aS,8R,9S,11bS)-Methyl 8-hydroxy-4,9,11b-trimethyl-7-(morpholinomethyl)tetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**19b**)



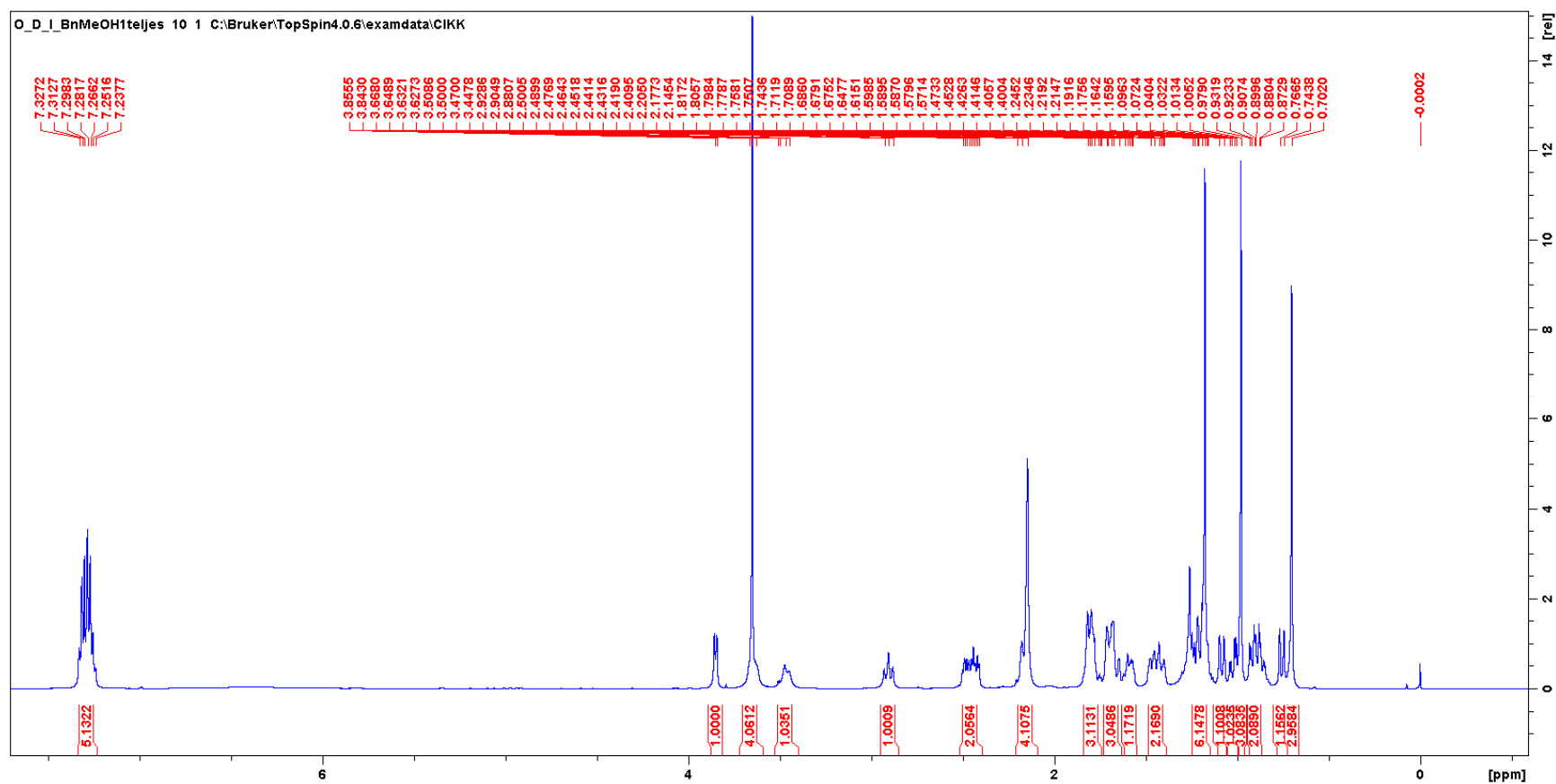
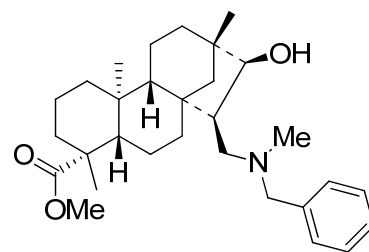
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19b**)



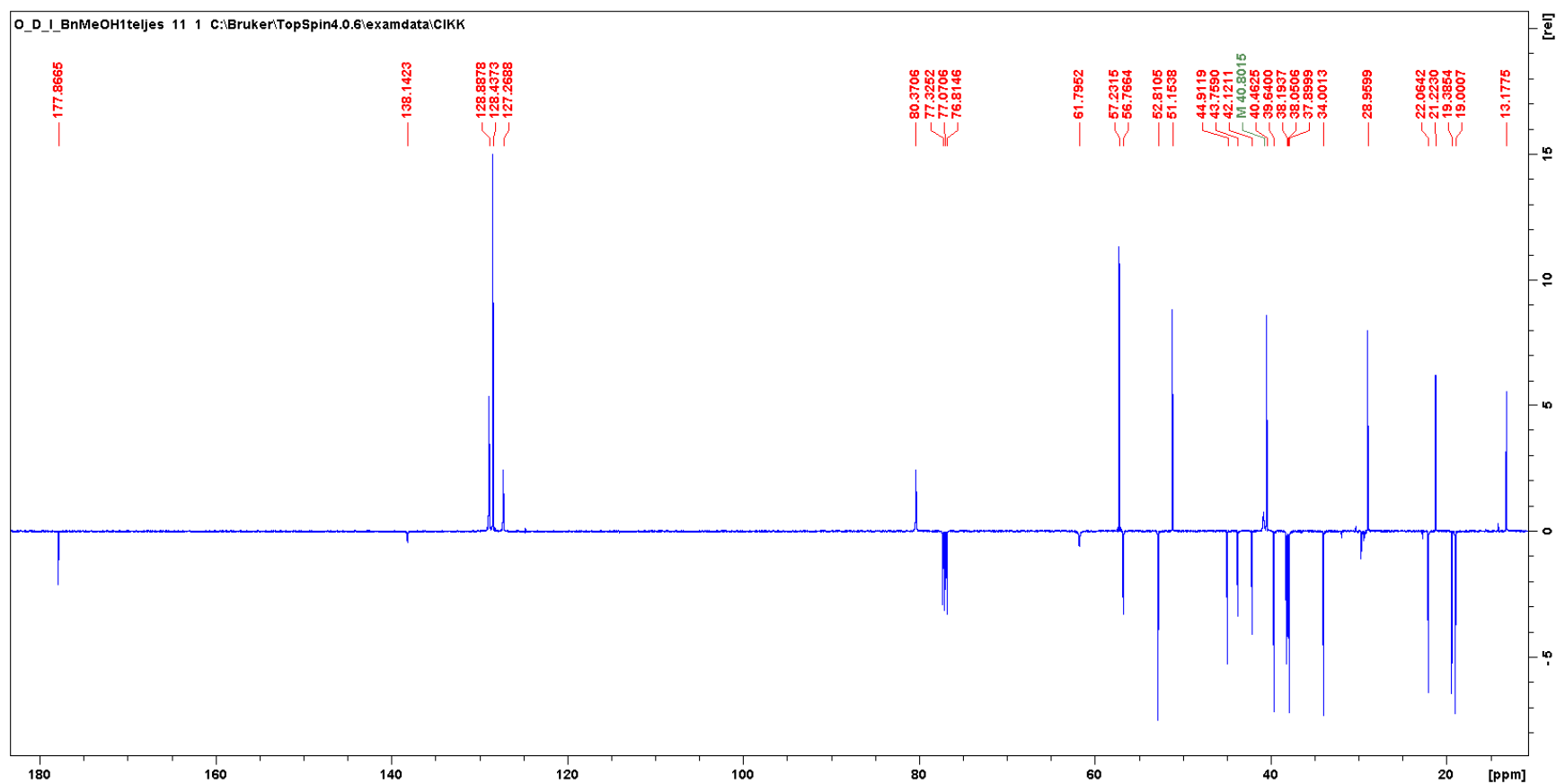
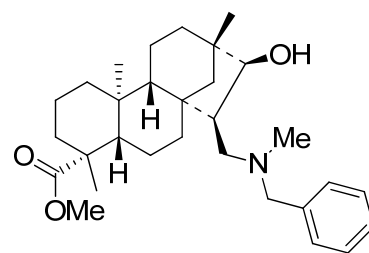
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(morpholinomethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**19b**)



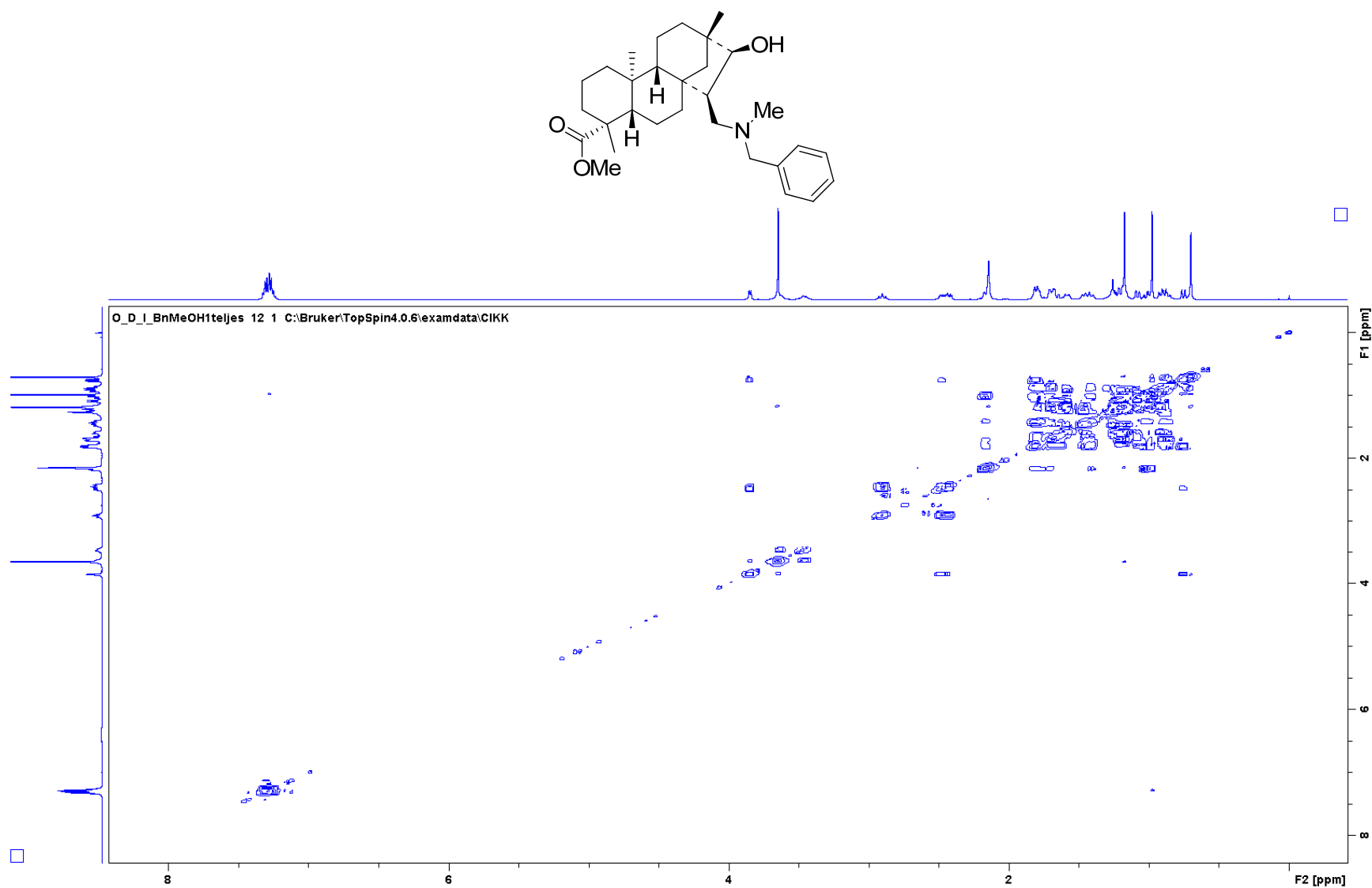
^1H -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20a**)



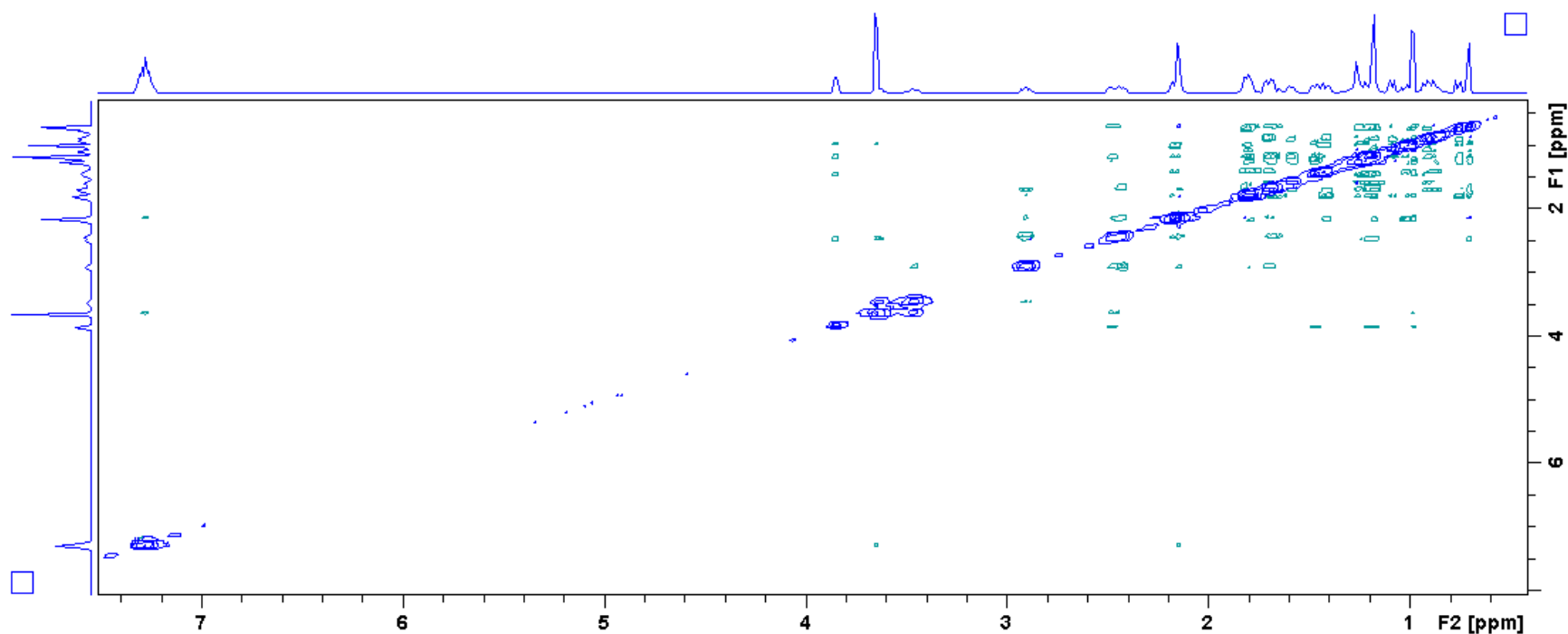
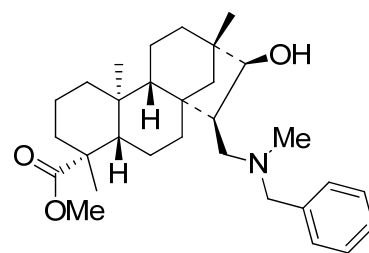
^{13}C -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20a**)



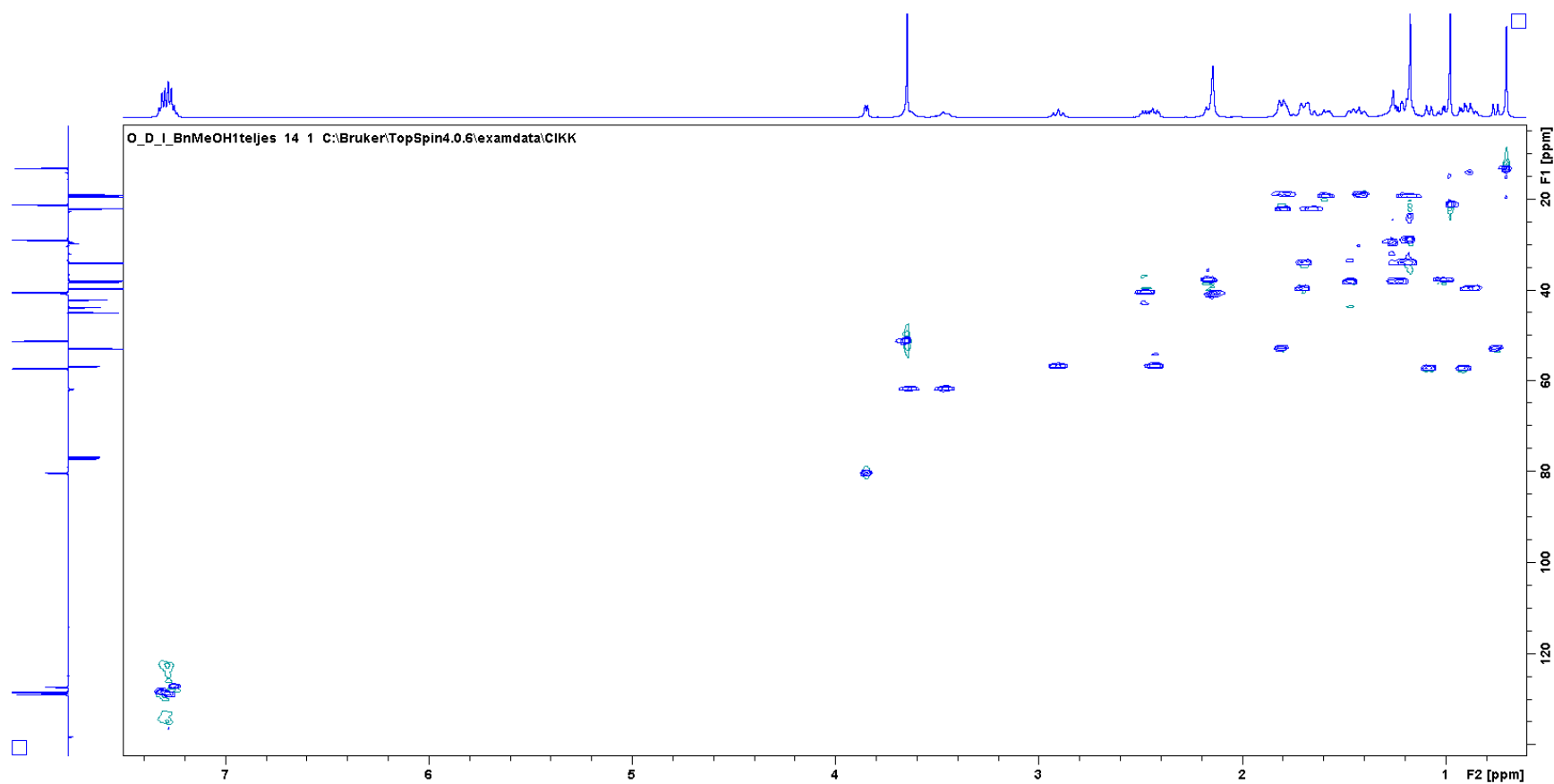
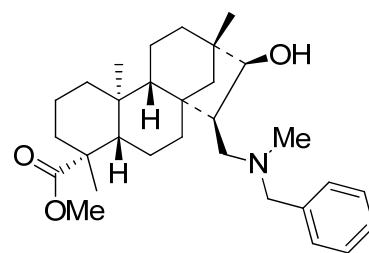
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20a**)



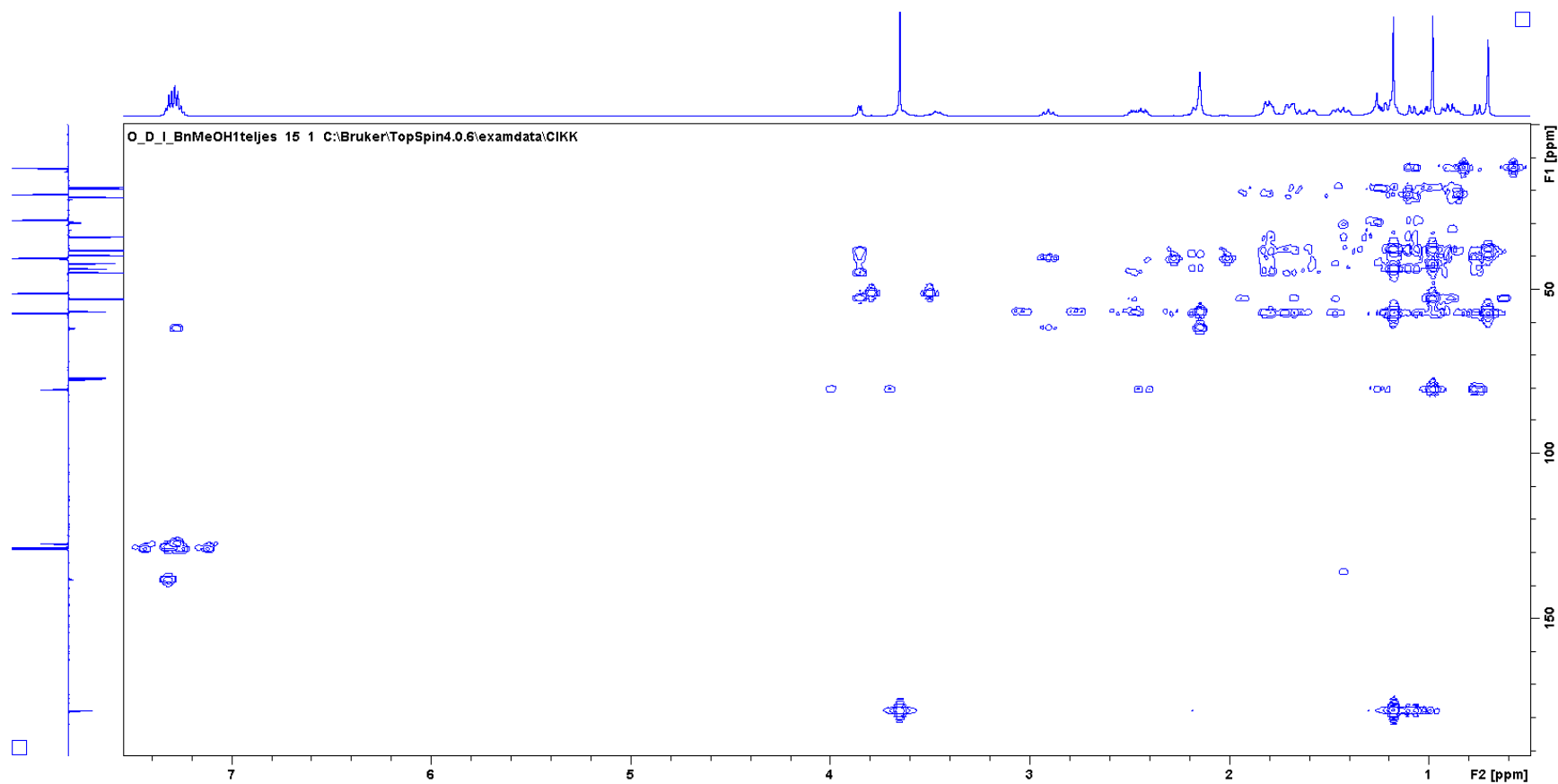
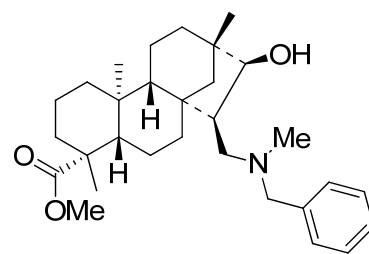
NOESY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11b-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20a**)



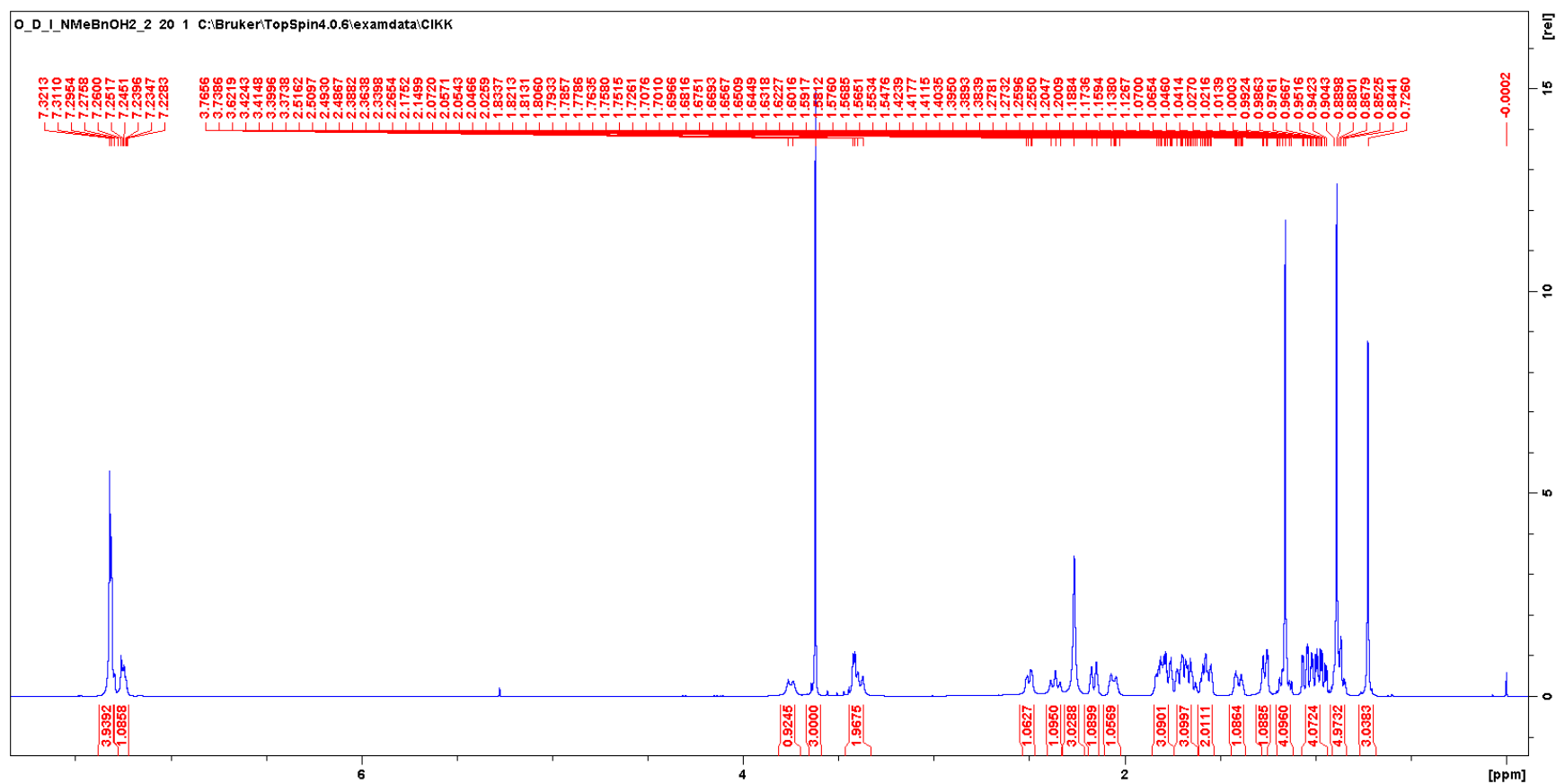
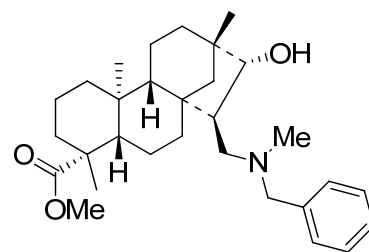
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20a**)



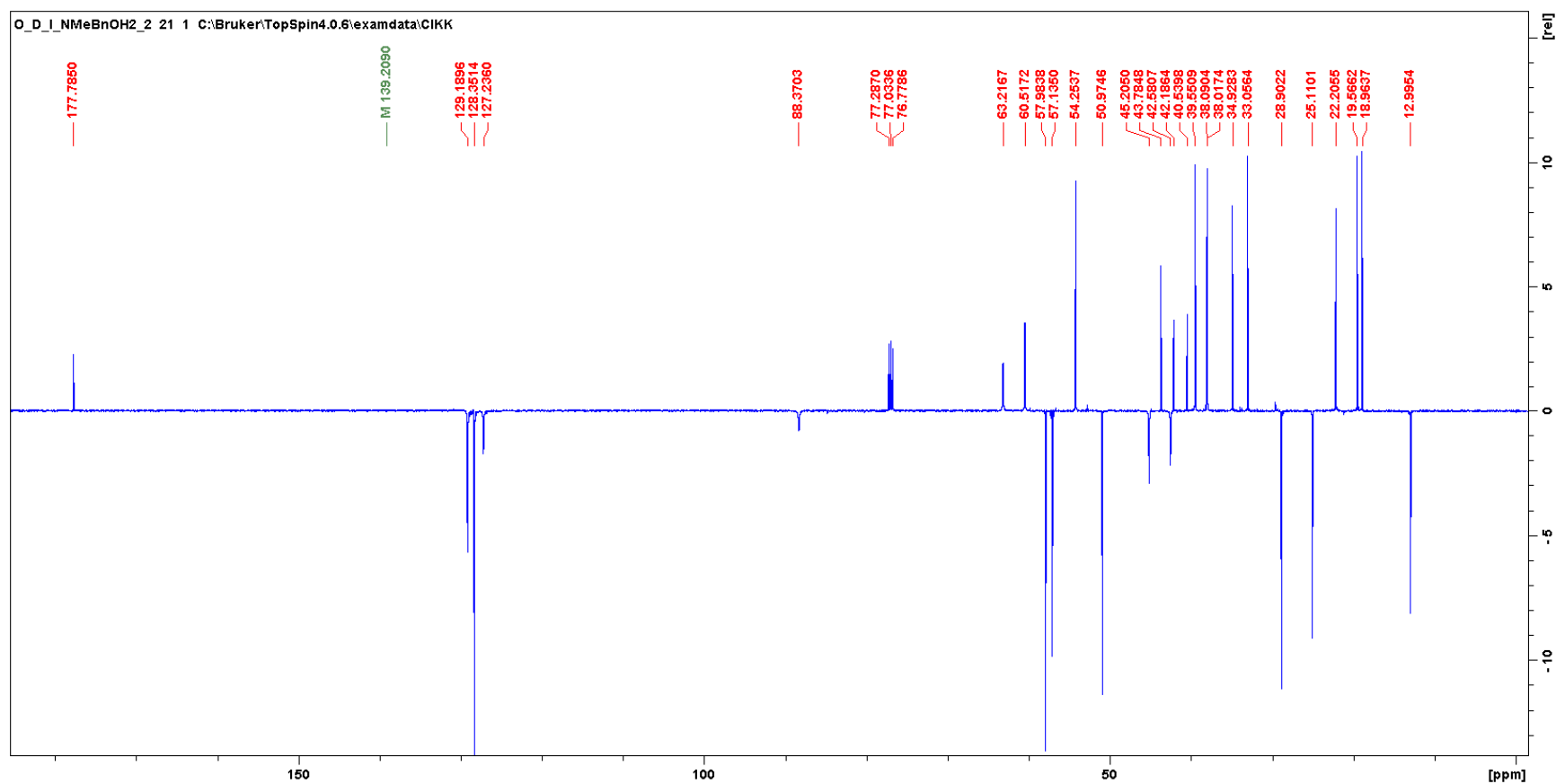
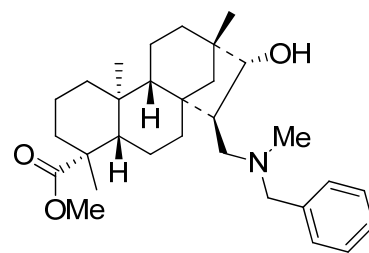
HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20a**)



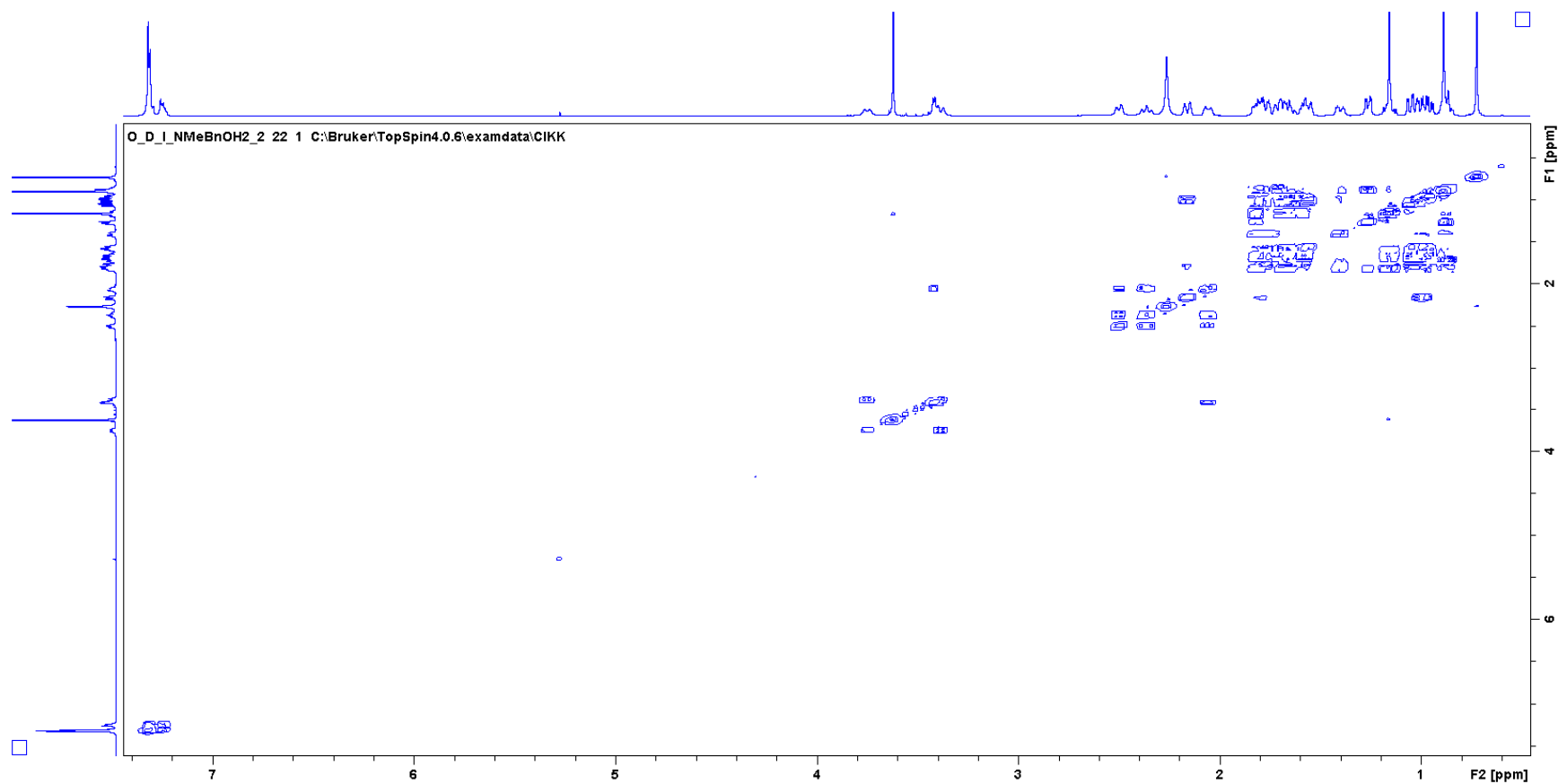
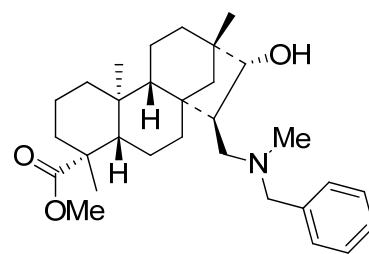
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20b**)



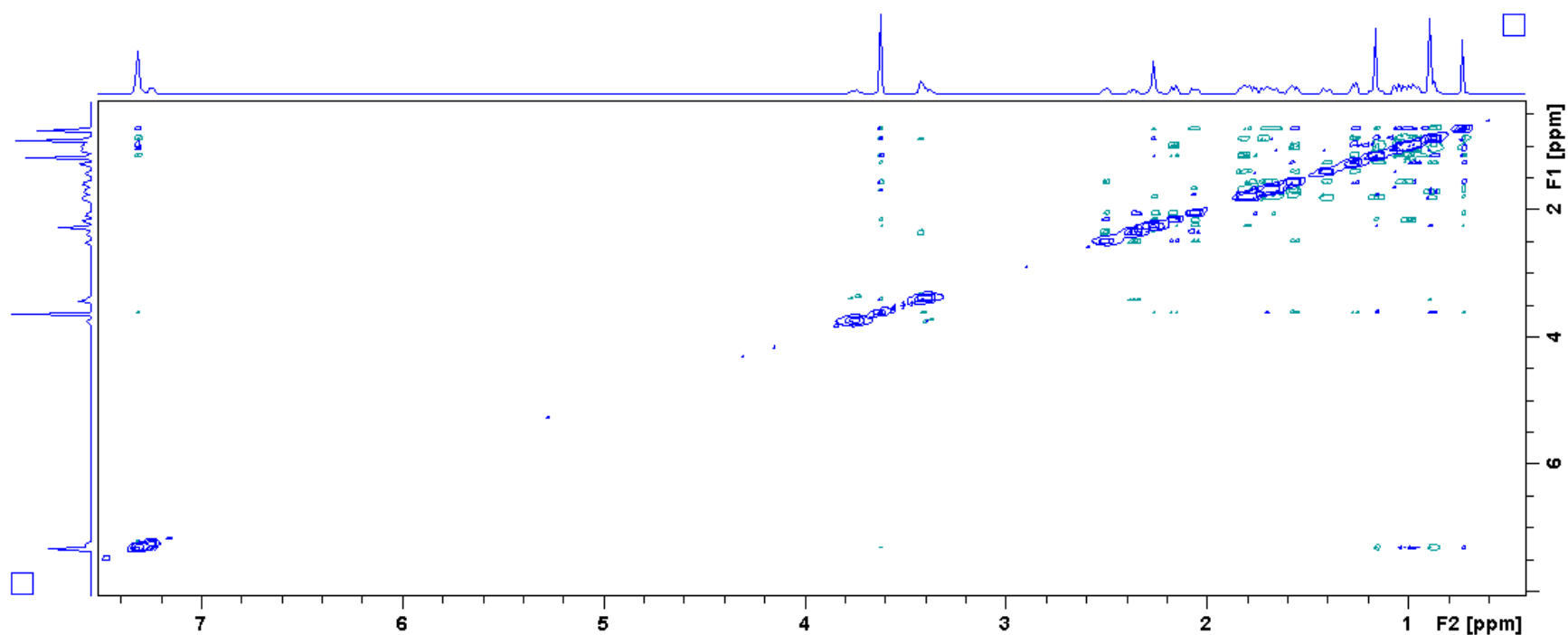
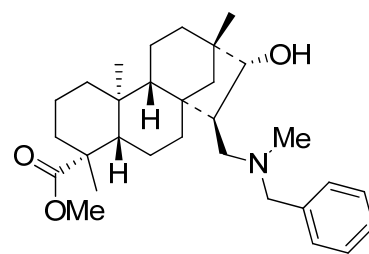
^{13}C -NMR of compound (4R,6aS,8R,9S,11bS)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11b-trimethyltetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**20b**)



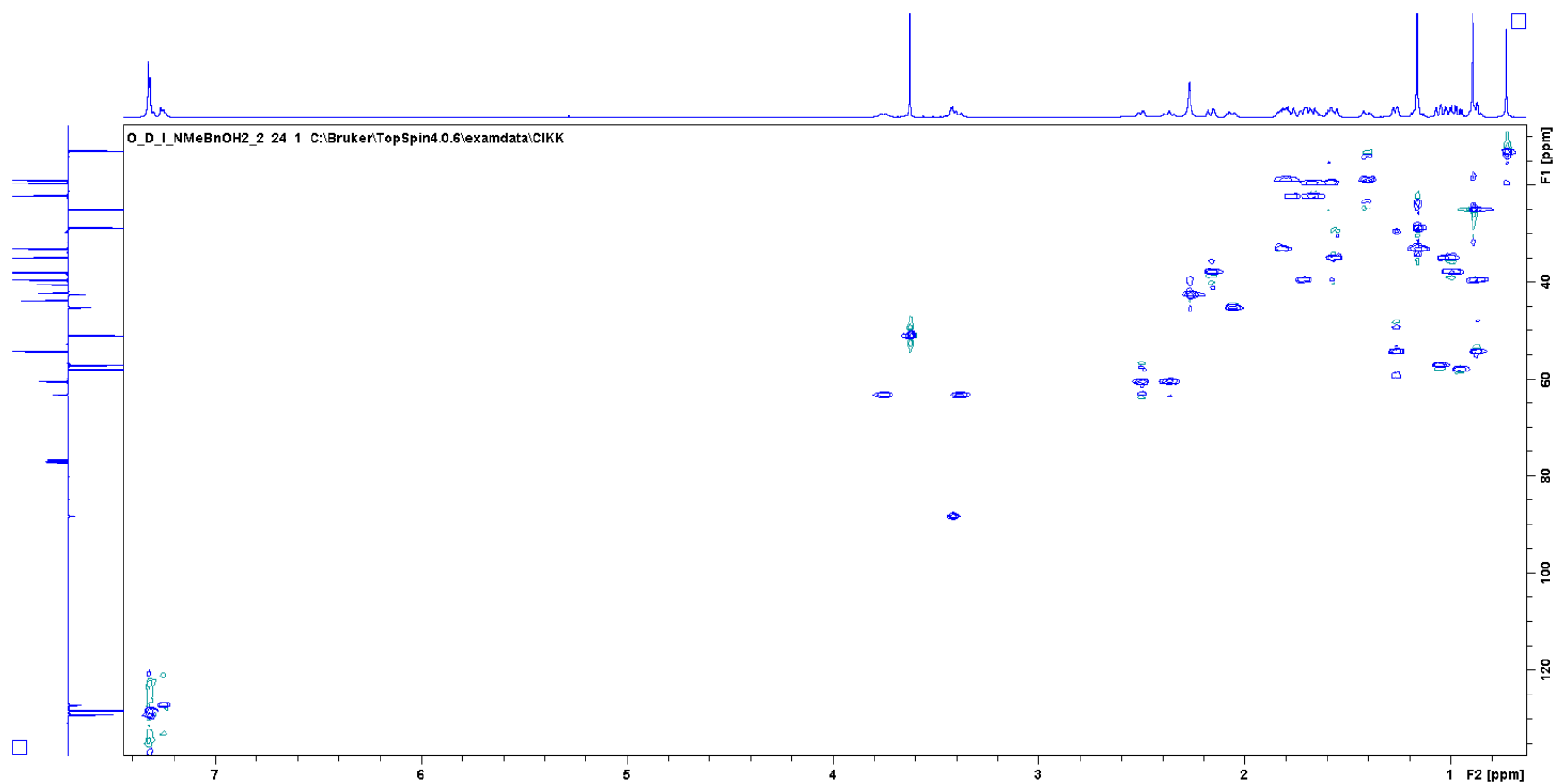
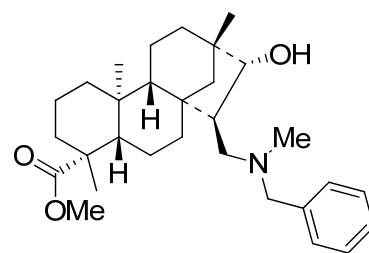
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20b**)



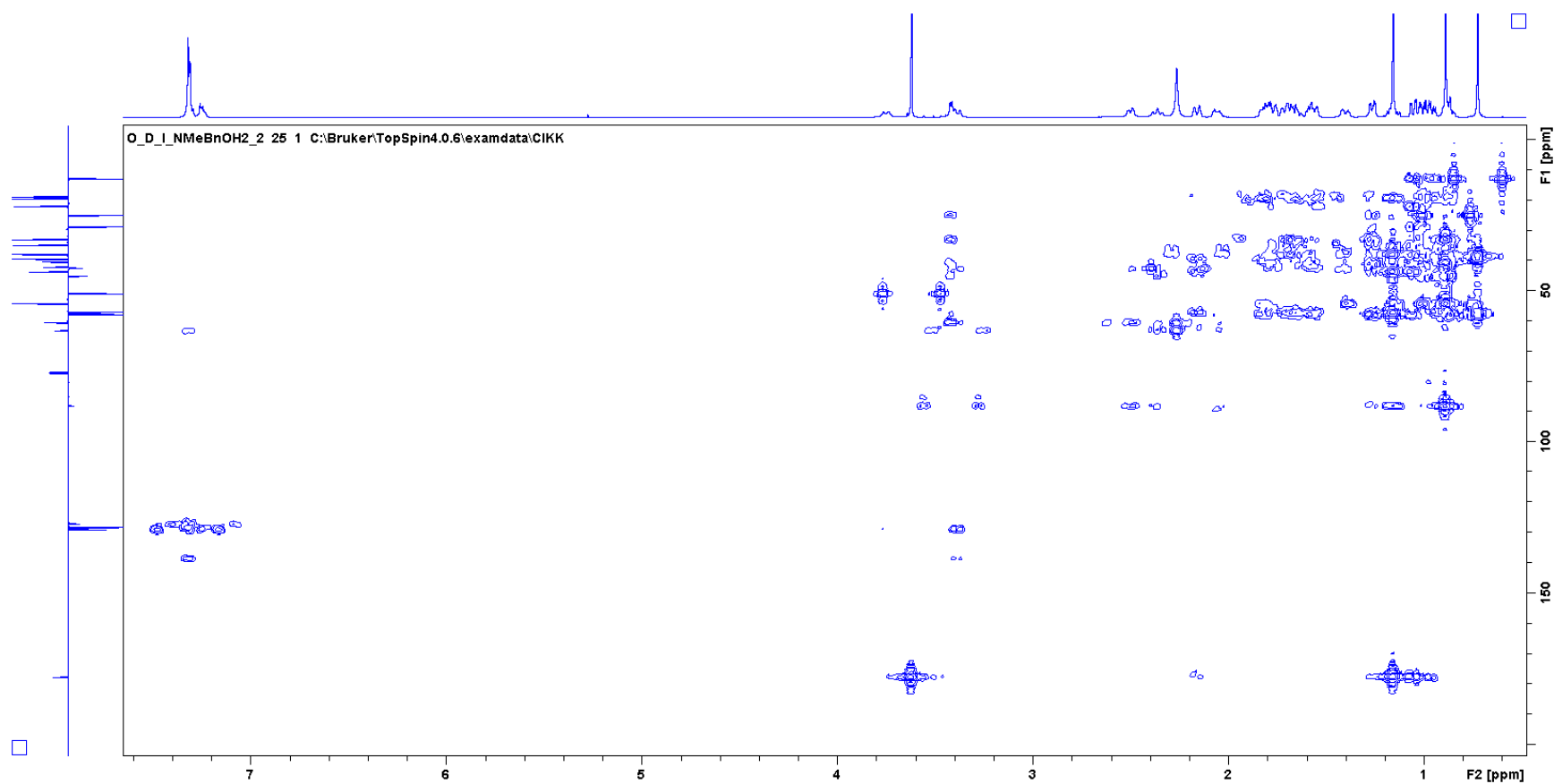
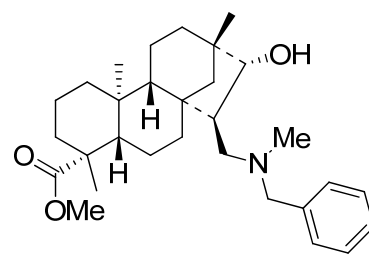
NOESY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20b**)



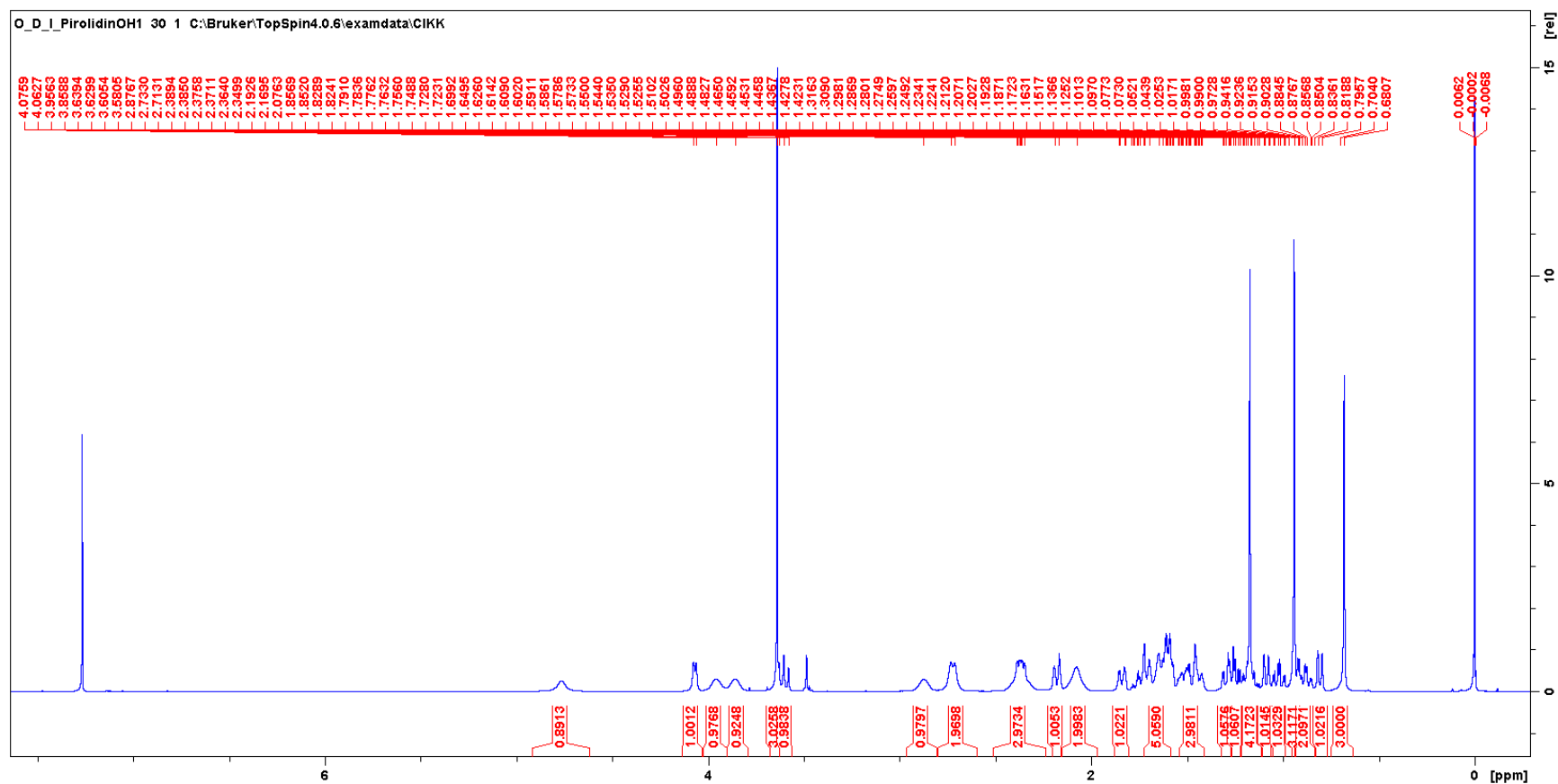
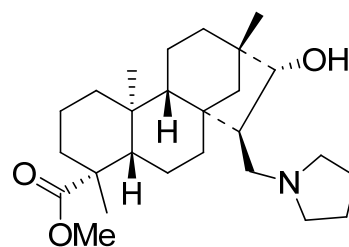
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20b**)



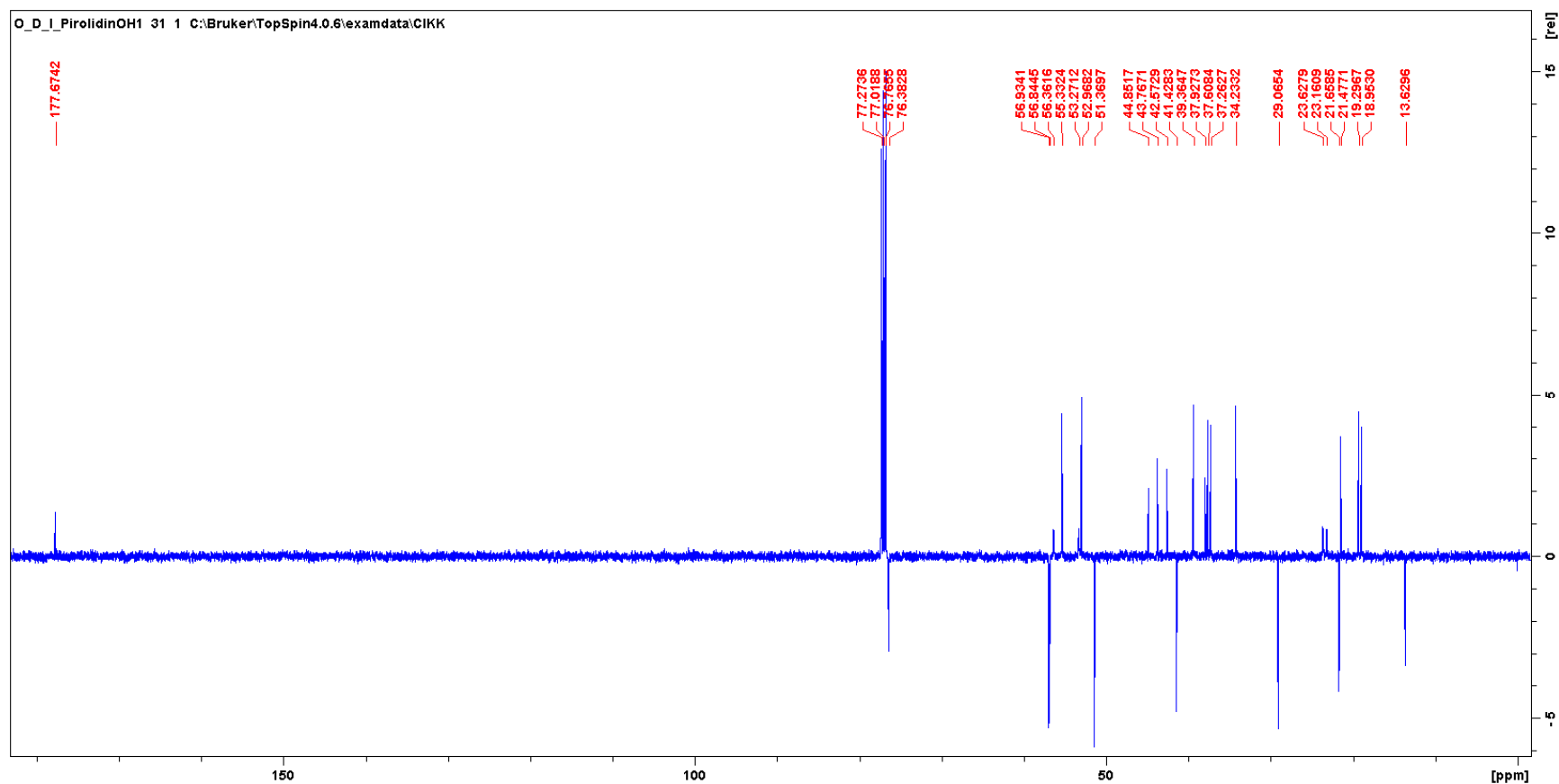
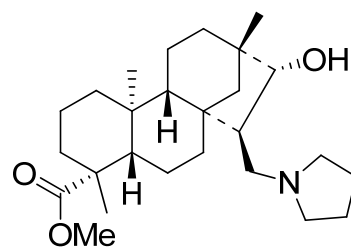
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((benzyl(methyl)amino)methyl)-8-hydroxy-4,9,11b-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**20b**)



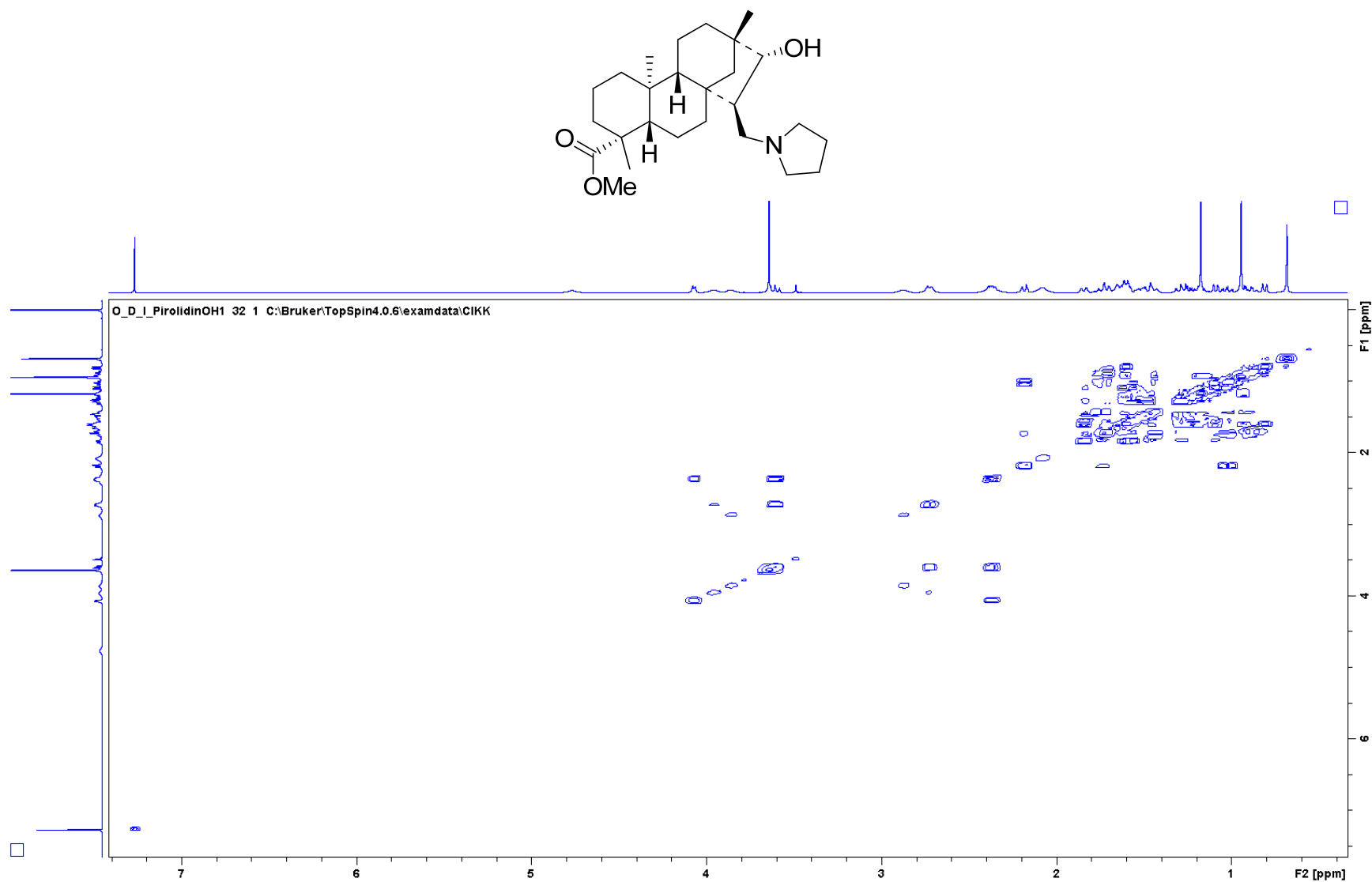
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**21**)



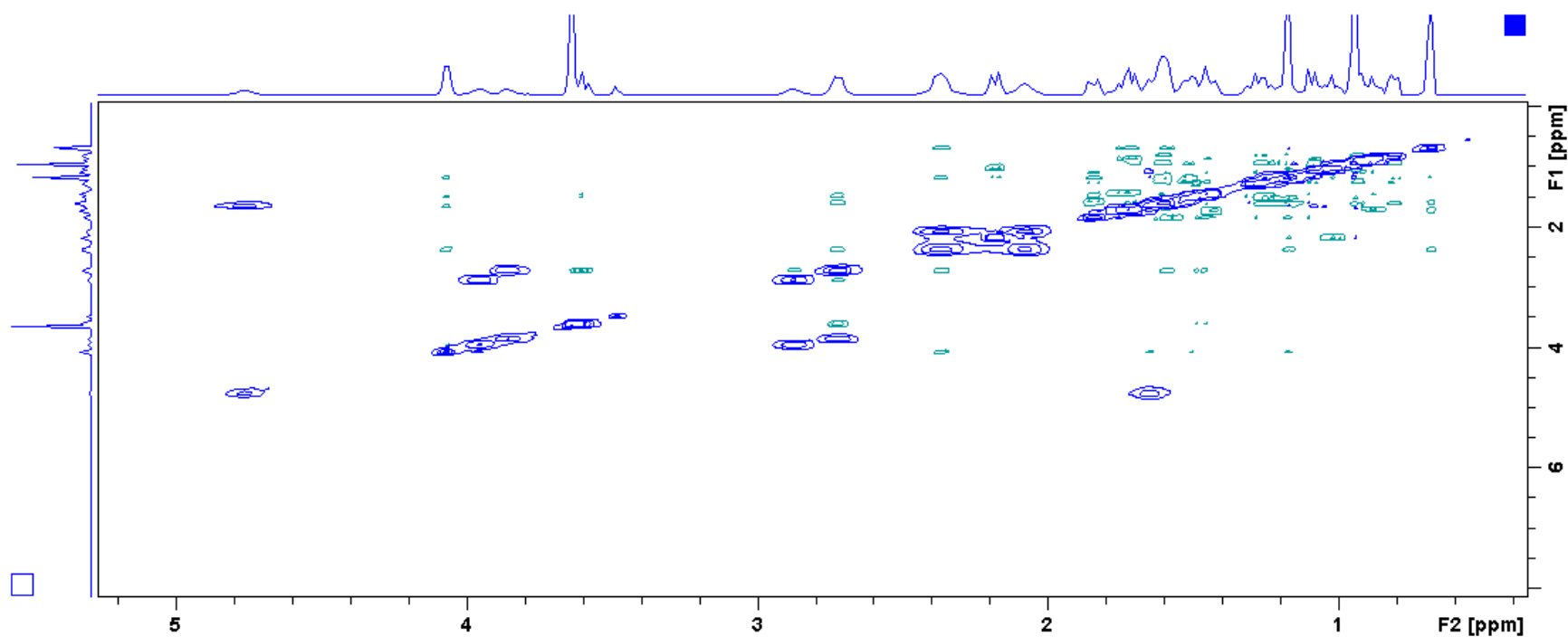
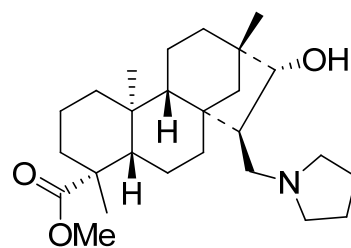
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**21**)



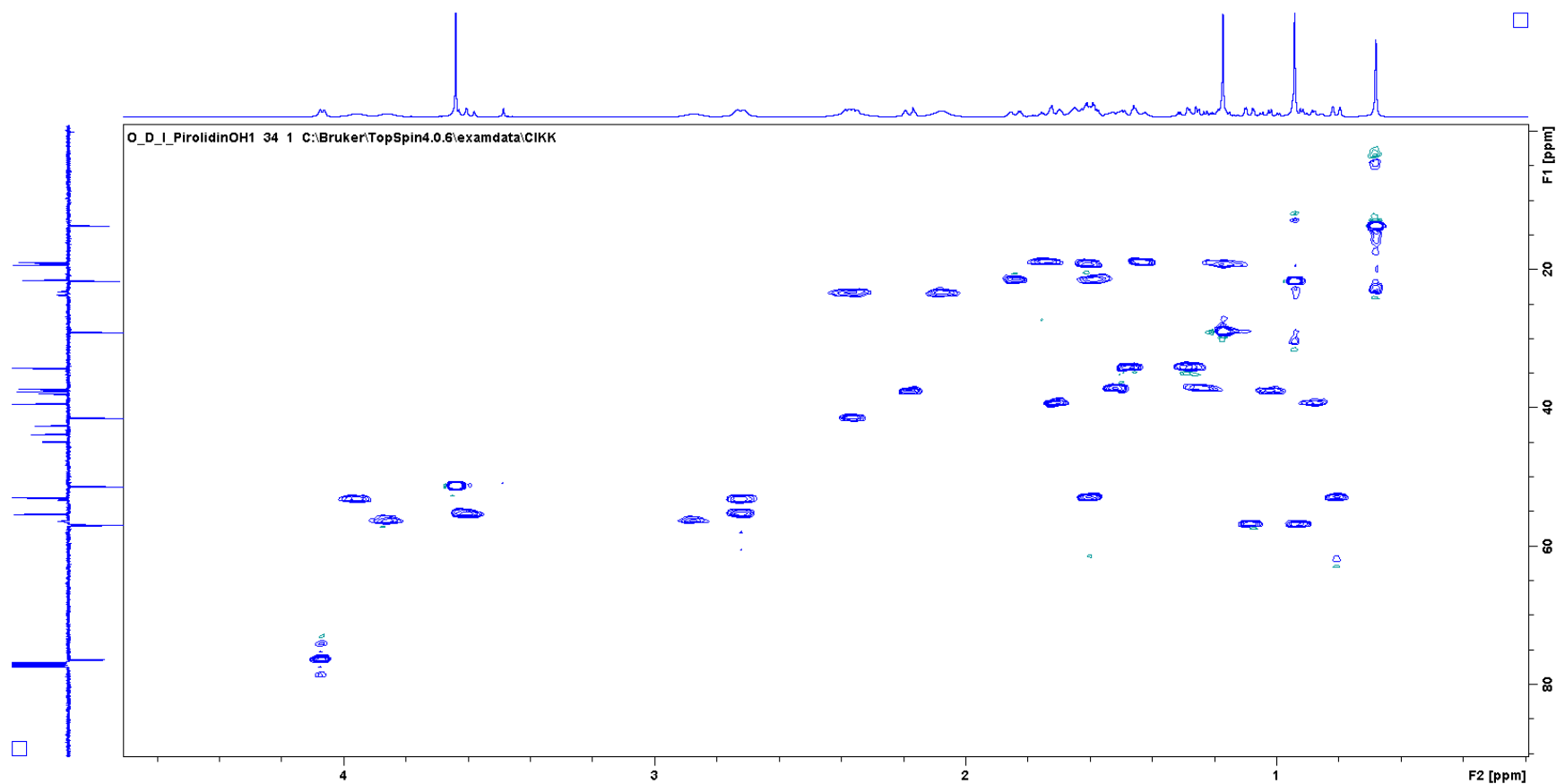
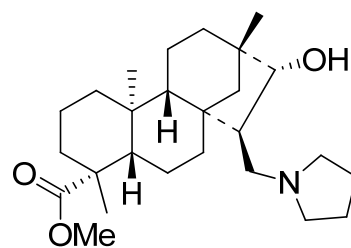
COSY of compound (4R,6aS,8R,9S,11bS)-Methyl 8-hydroxy-4,9,11b-trimethyl-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**21**)



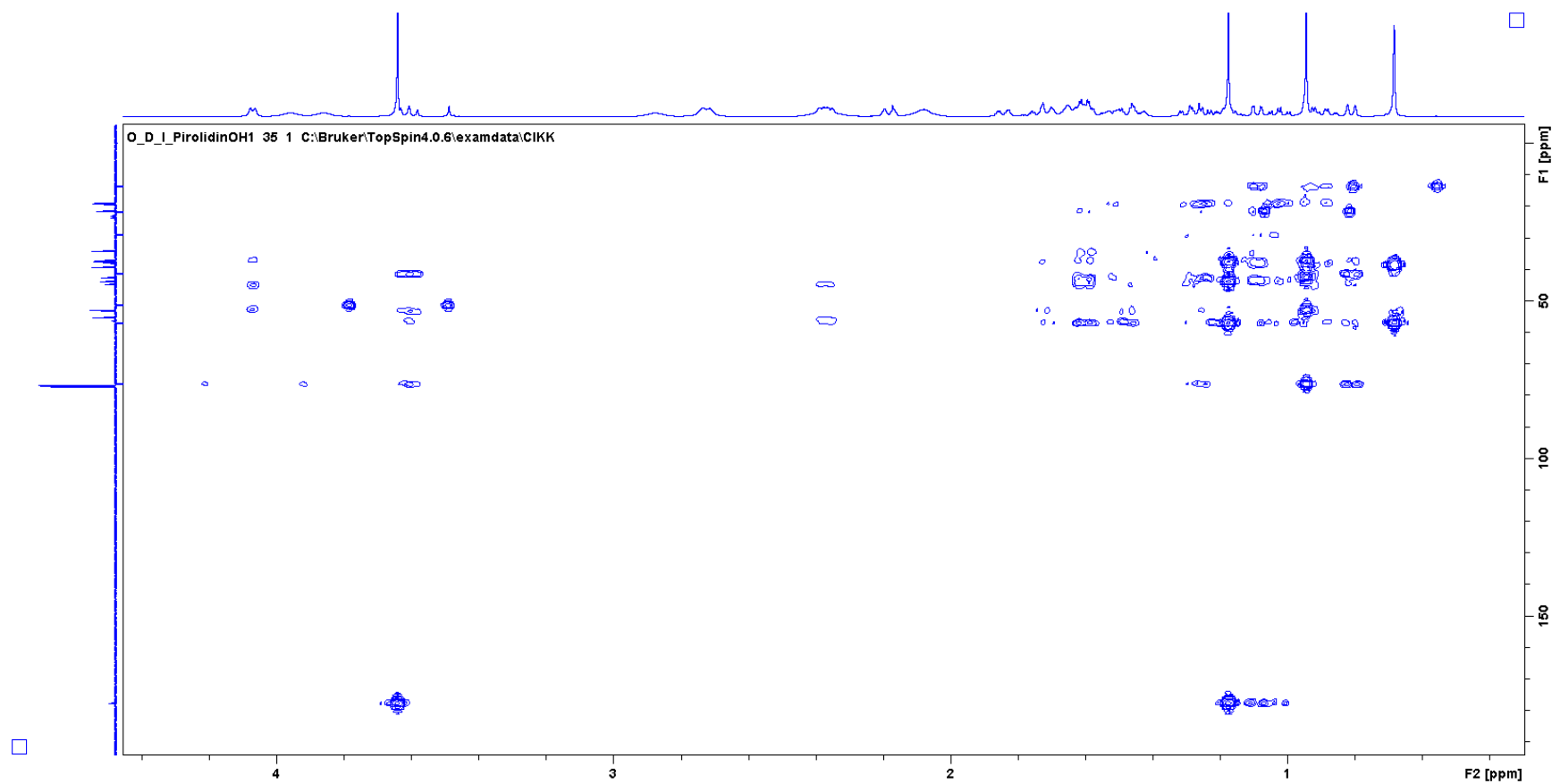
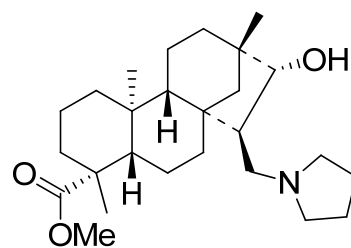
NOESY of compound (4R,6aS,8R,9S,11bS)-Methyl 8-hydroxy-4,9,11b-trimethyl-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**21**)



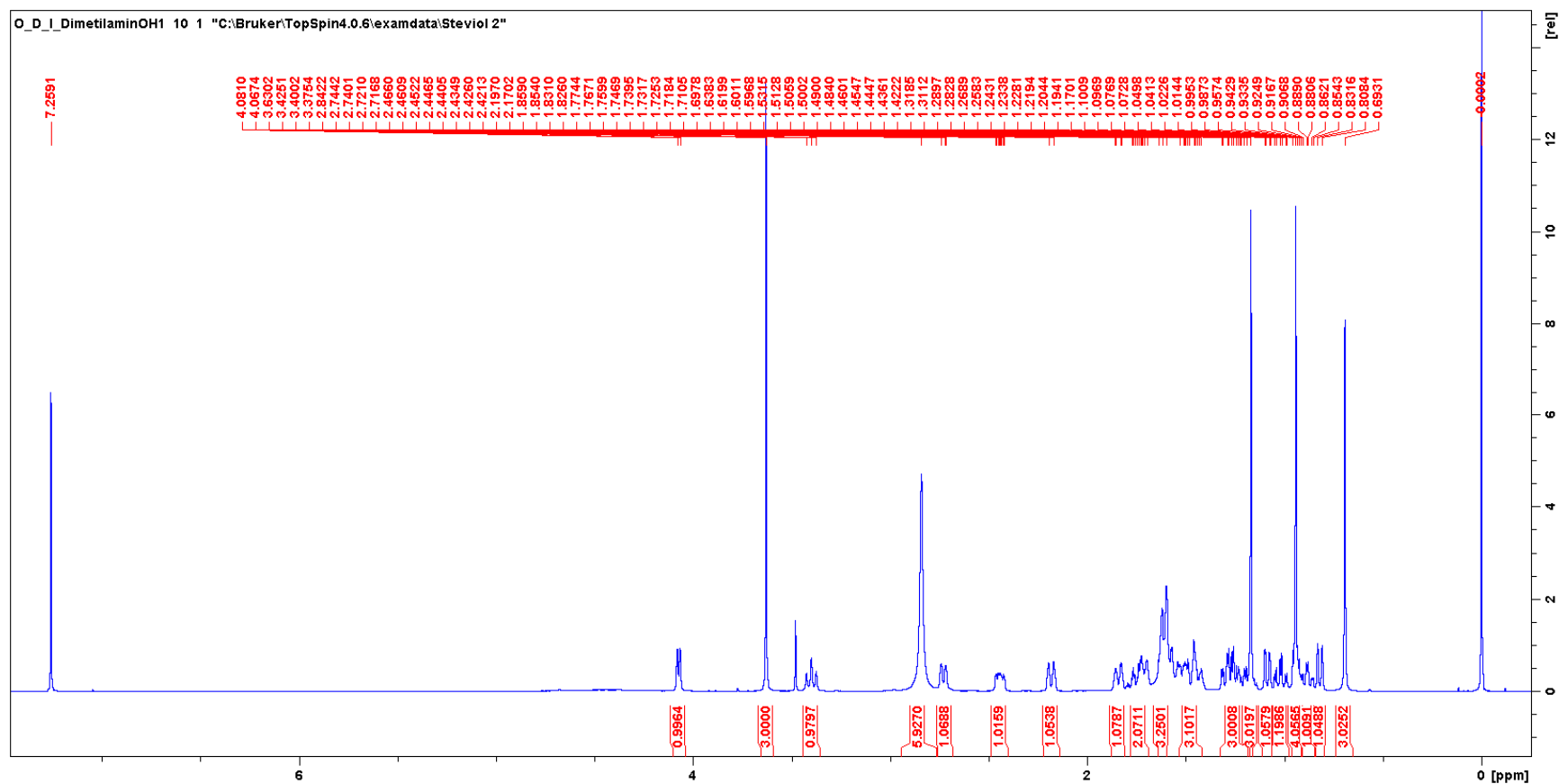
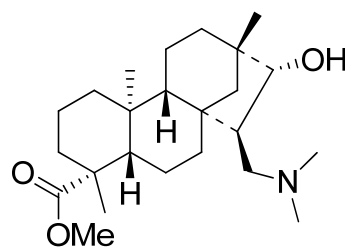
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**21**)



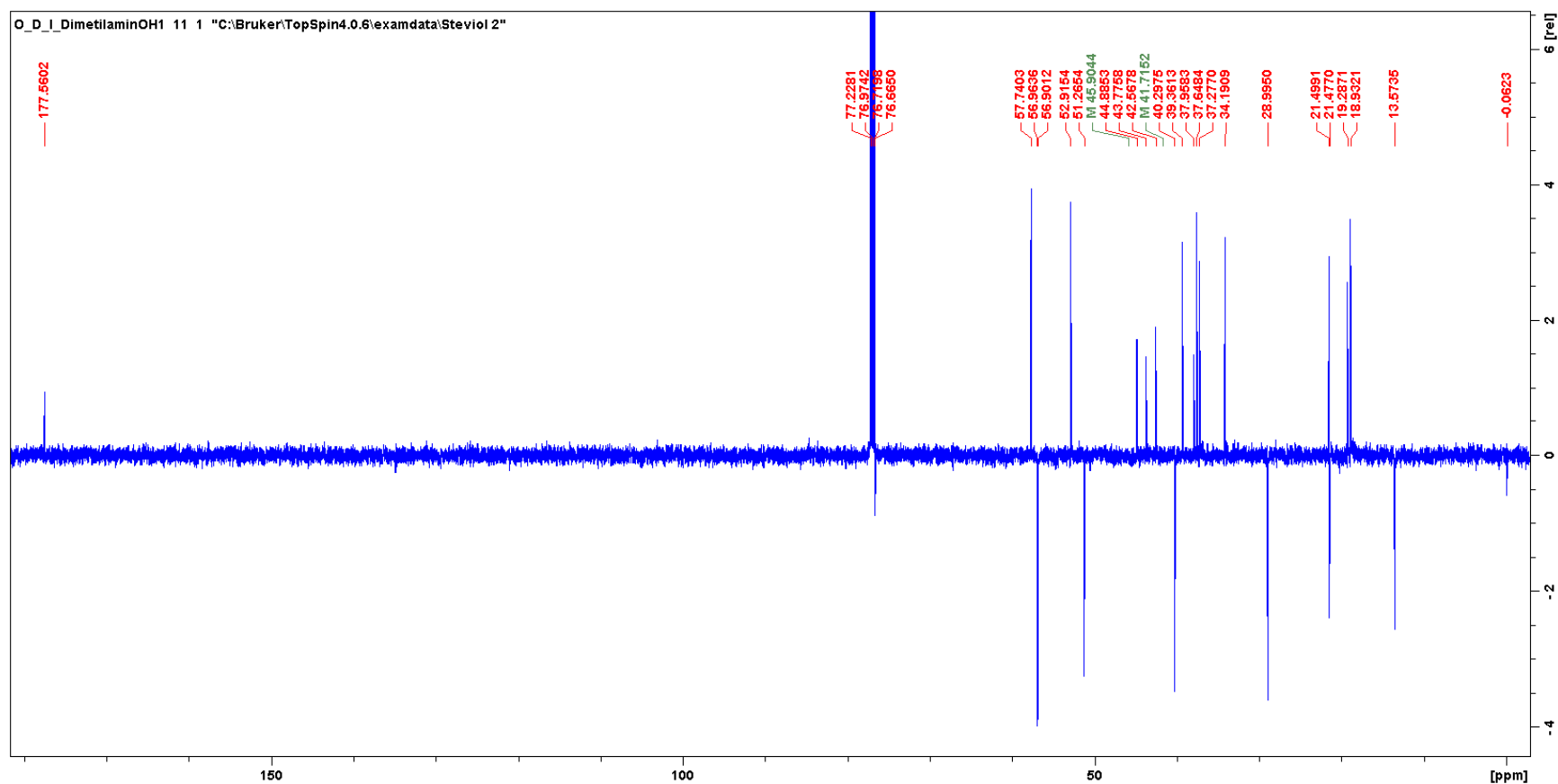
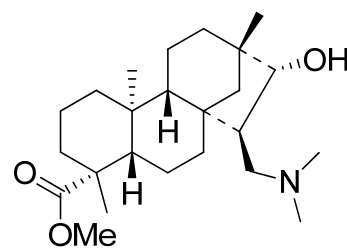
HMBC of compound (4R,6a*S*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(pyrrolidin-1-ylmethyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**21**)



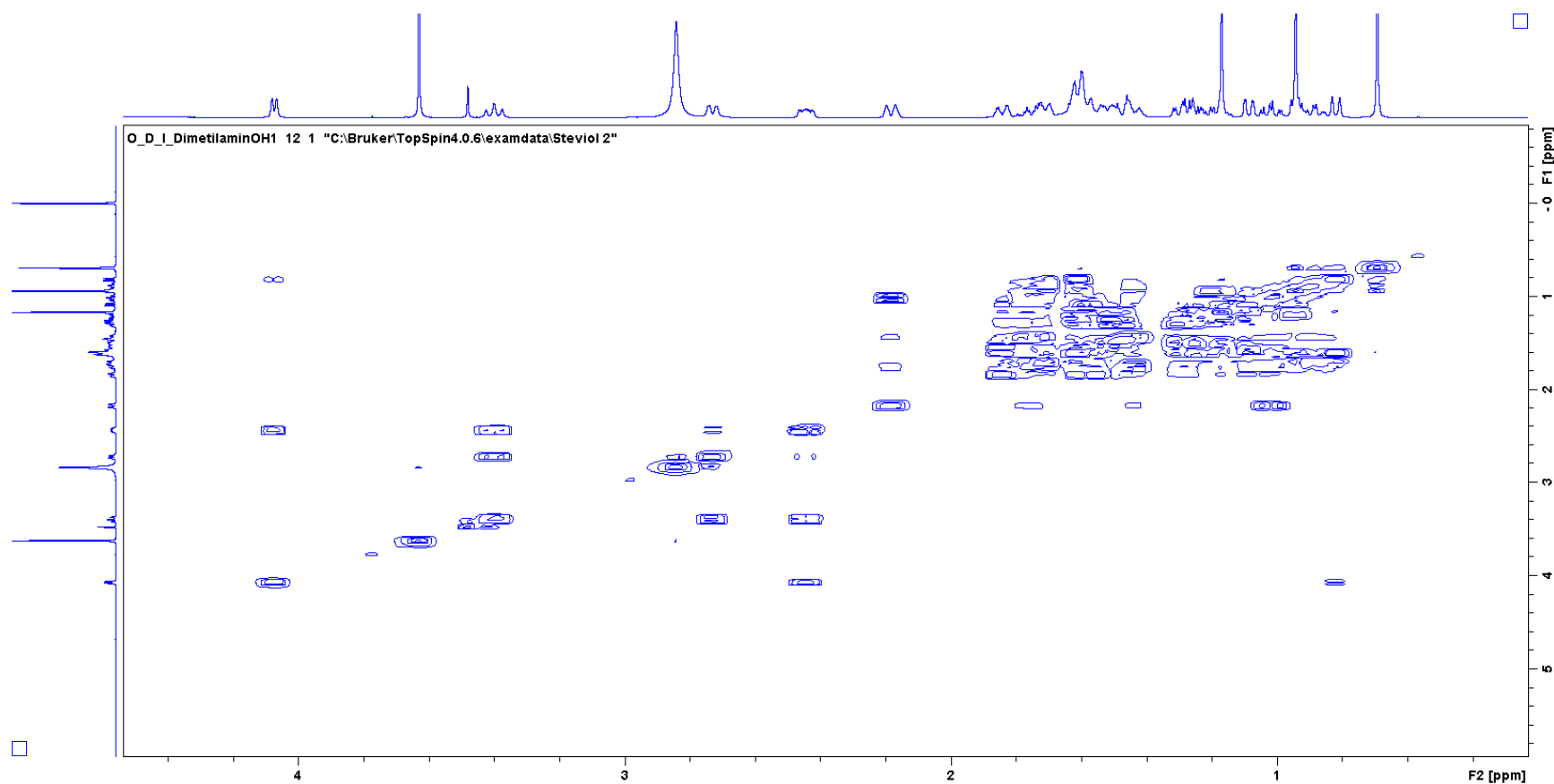
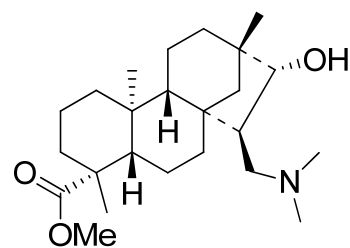
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**22**)



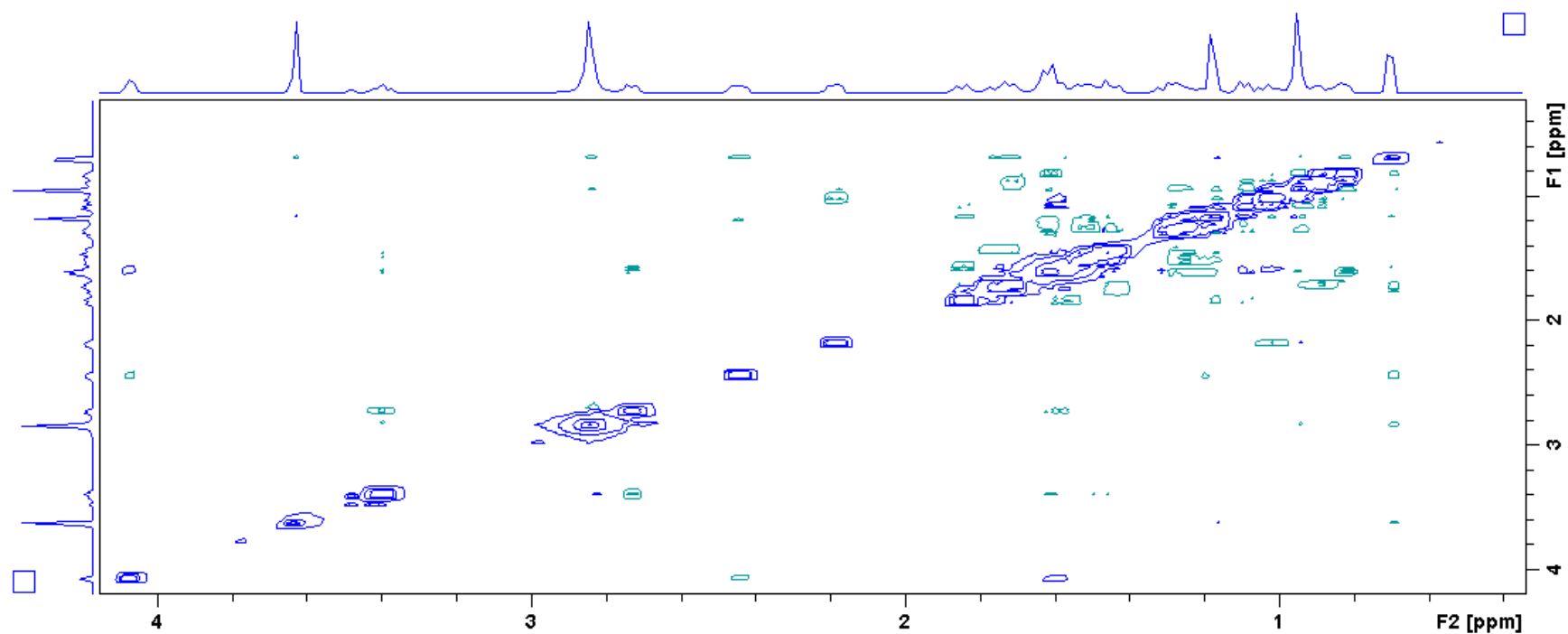
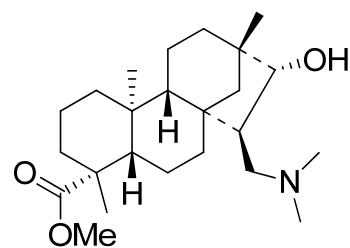
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**22**)



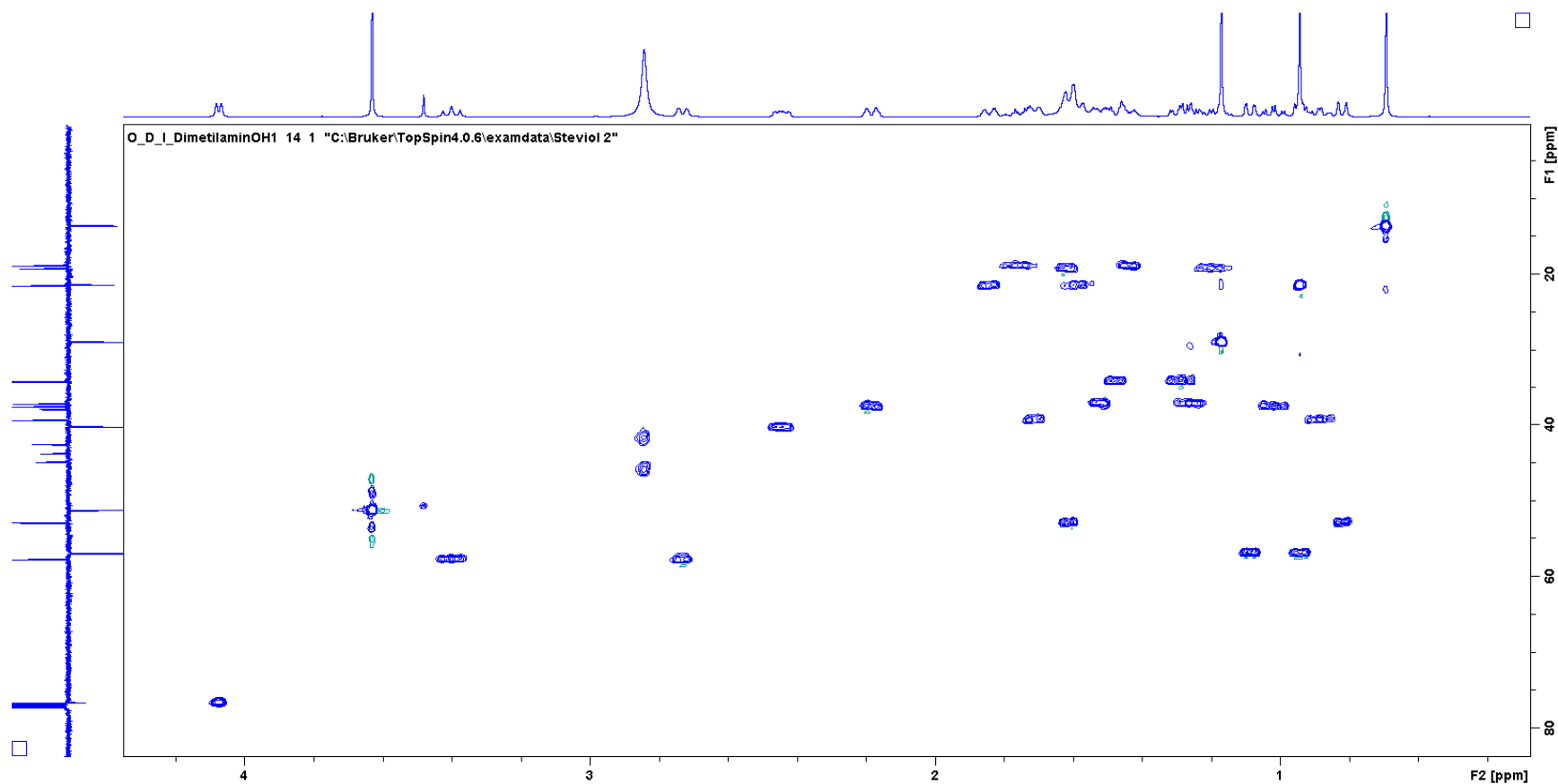
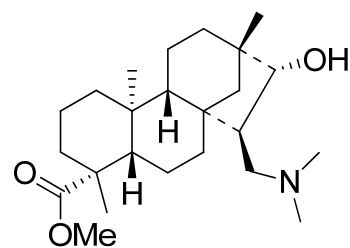
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**22**)



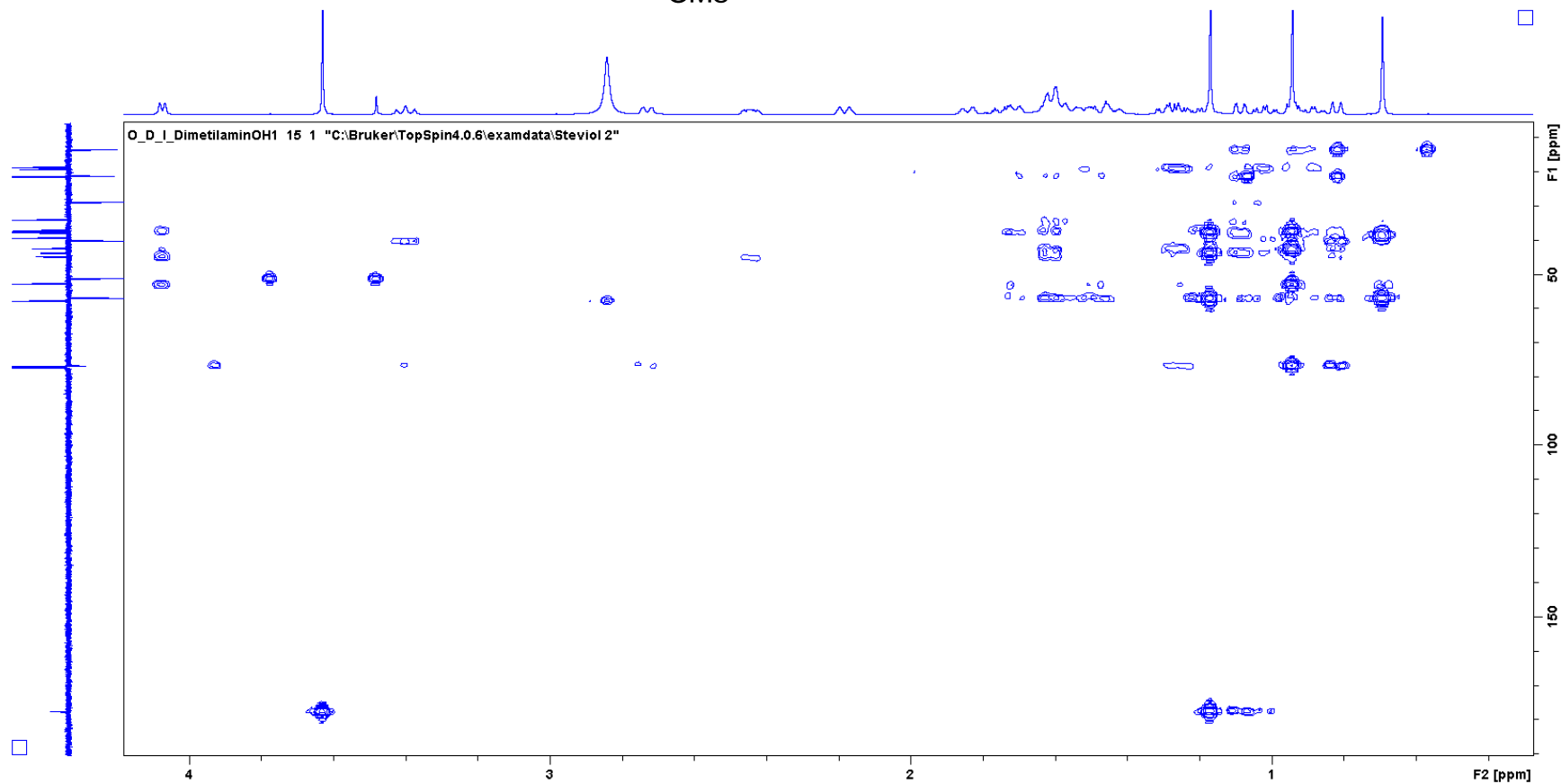
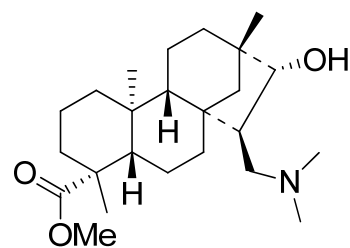
NOESY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**22**)



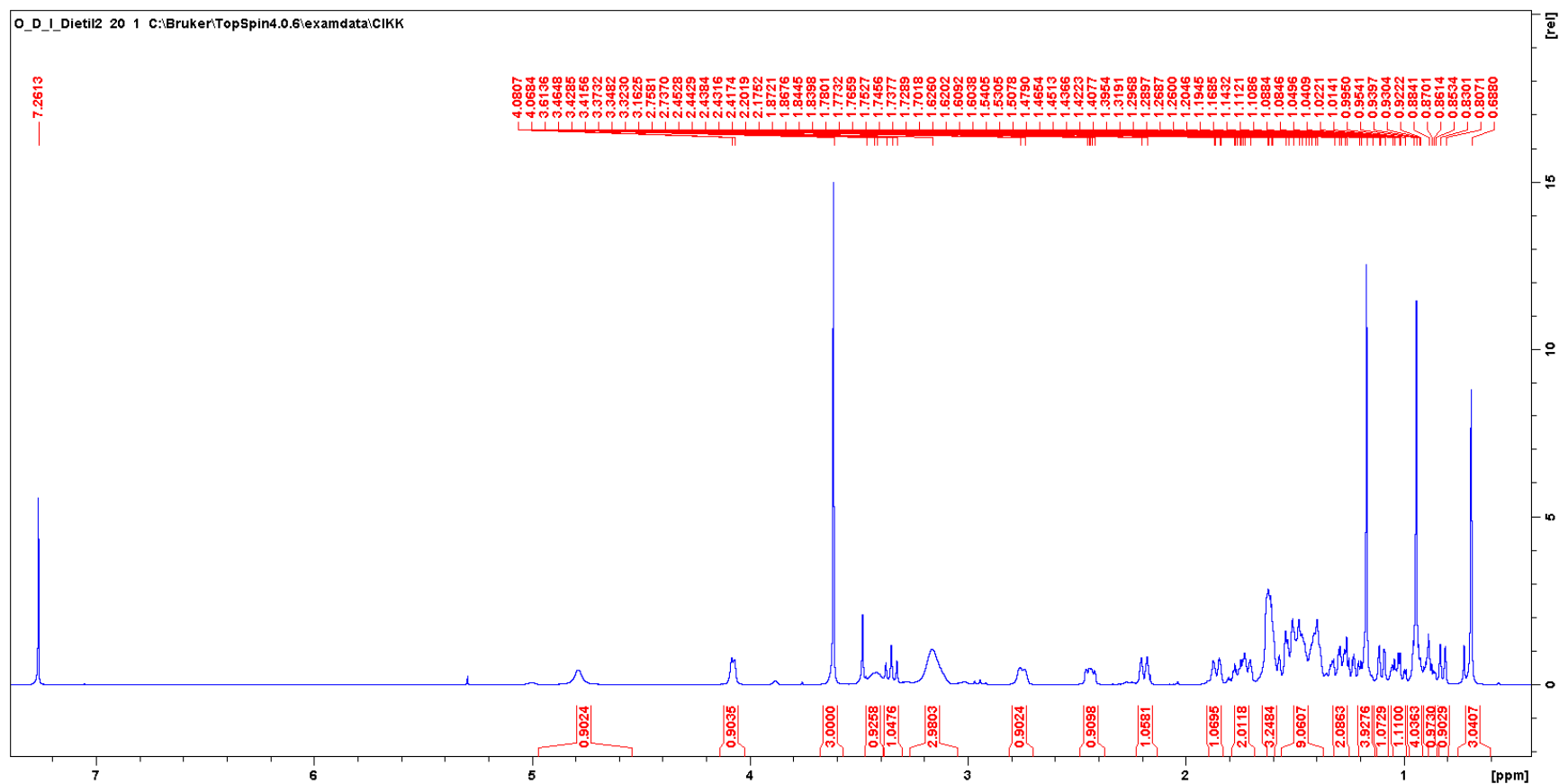
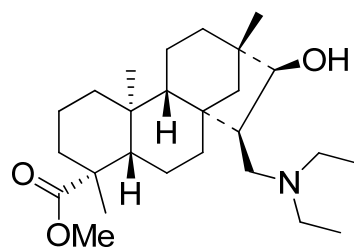
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**22**)



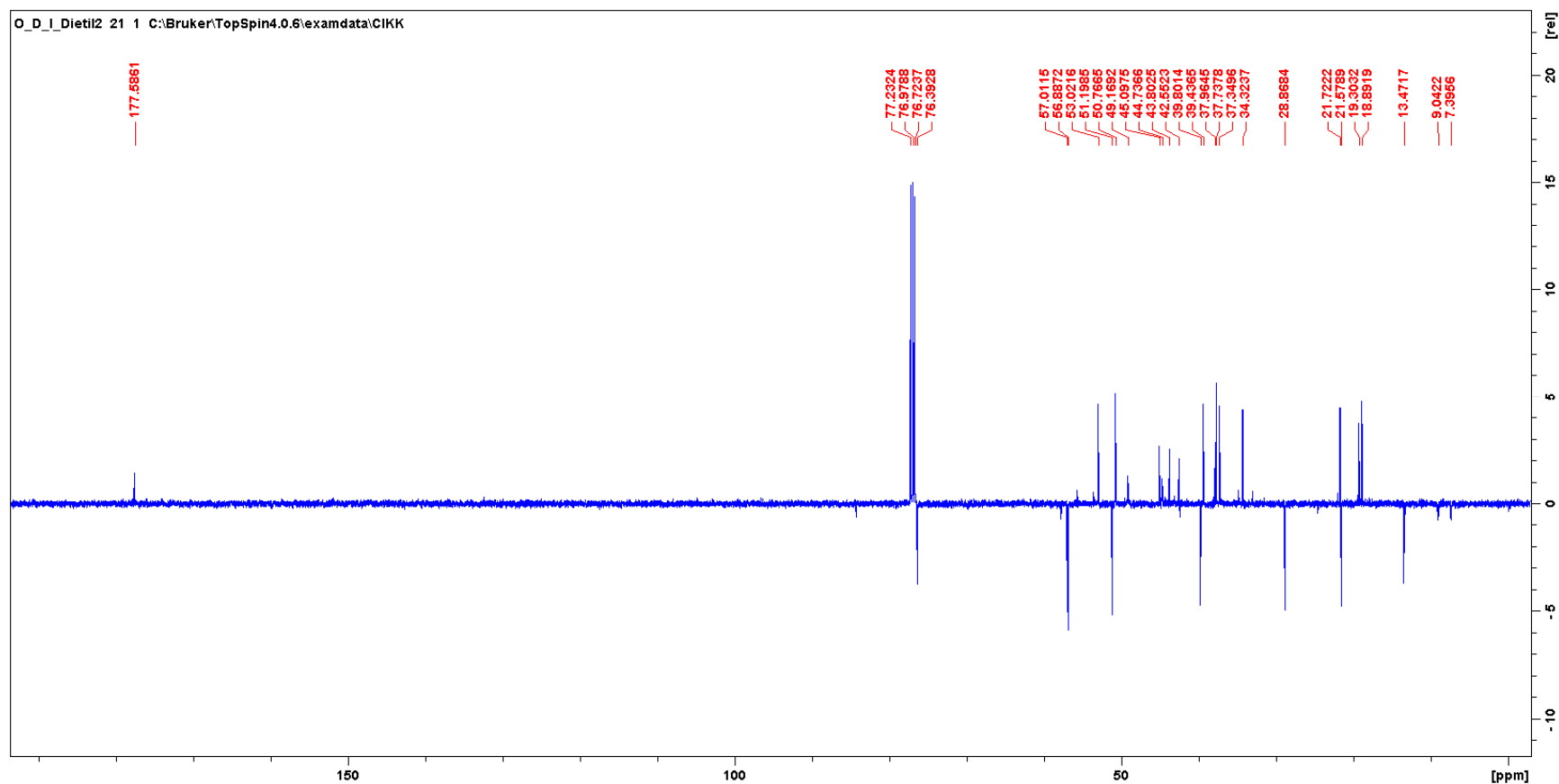
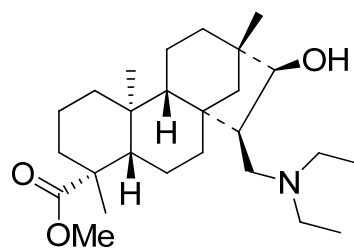
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((dimethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**22**)



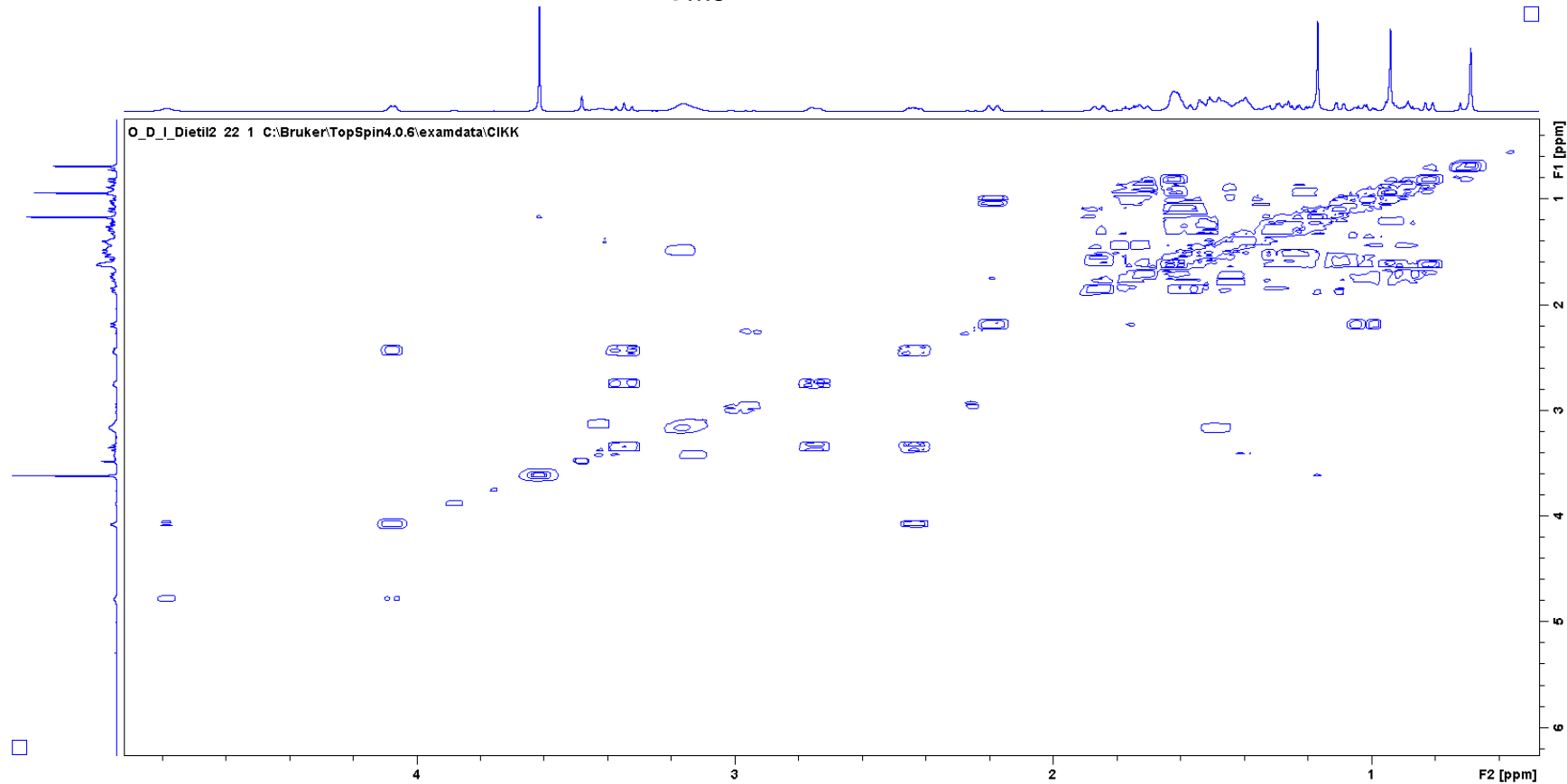
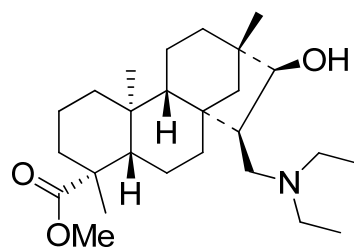
^1H -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23a**)



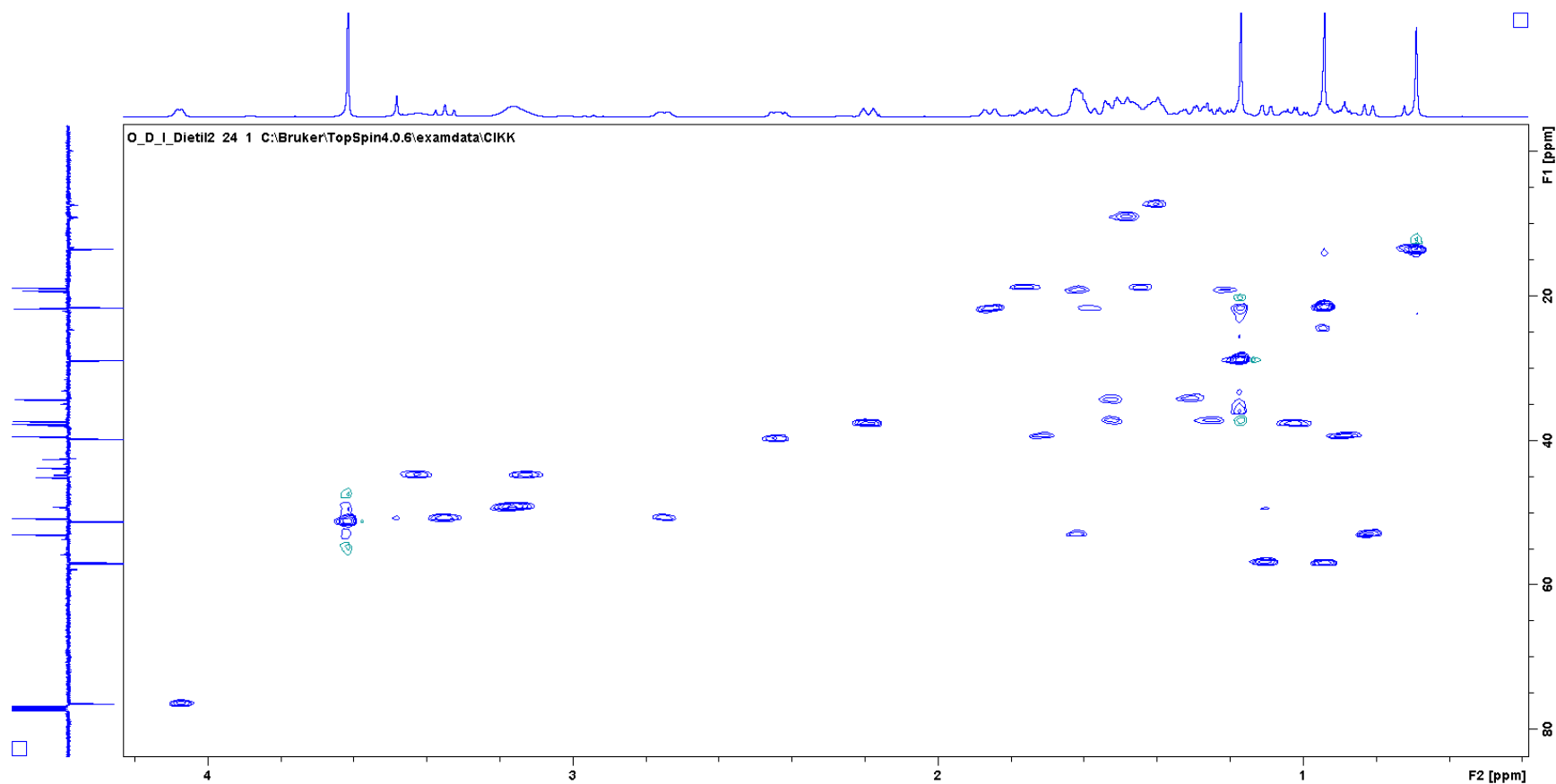
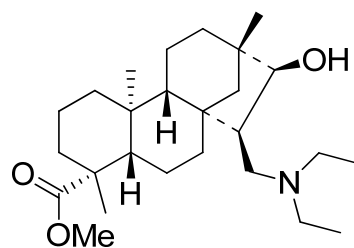
^{13}C -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23a**)



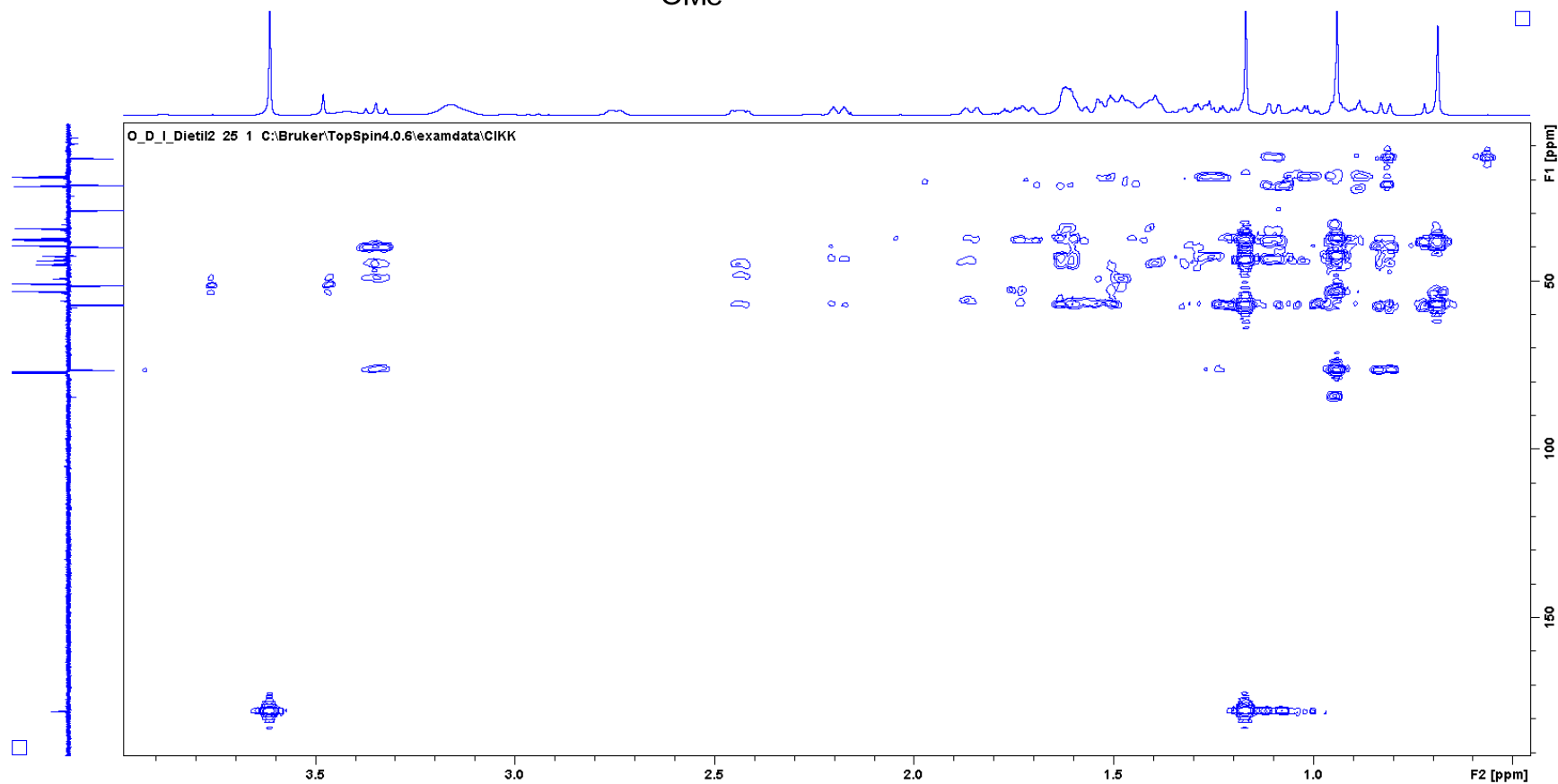
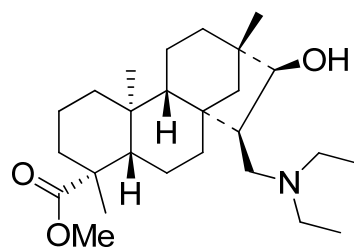
COSY of compound (4R,6aS,9S,11bS)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11b-trimethyltetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**23a**)



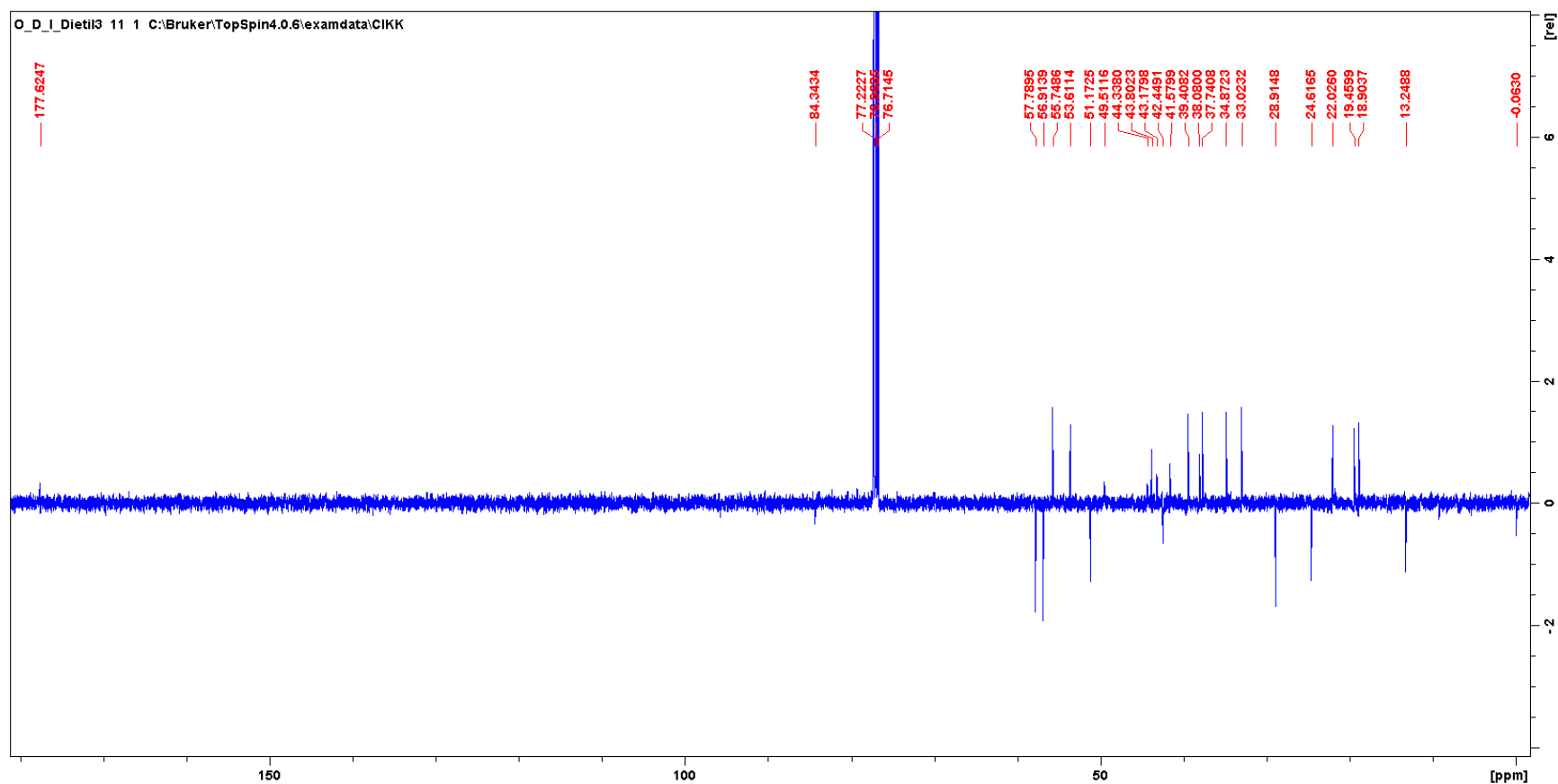
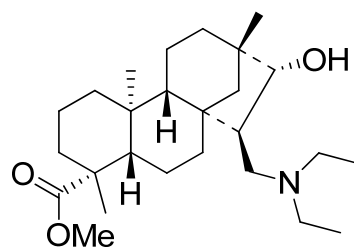
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23a**)



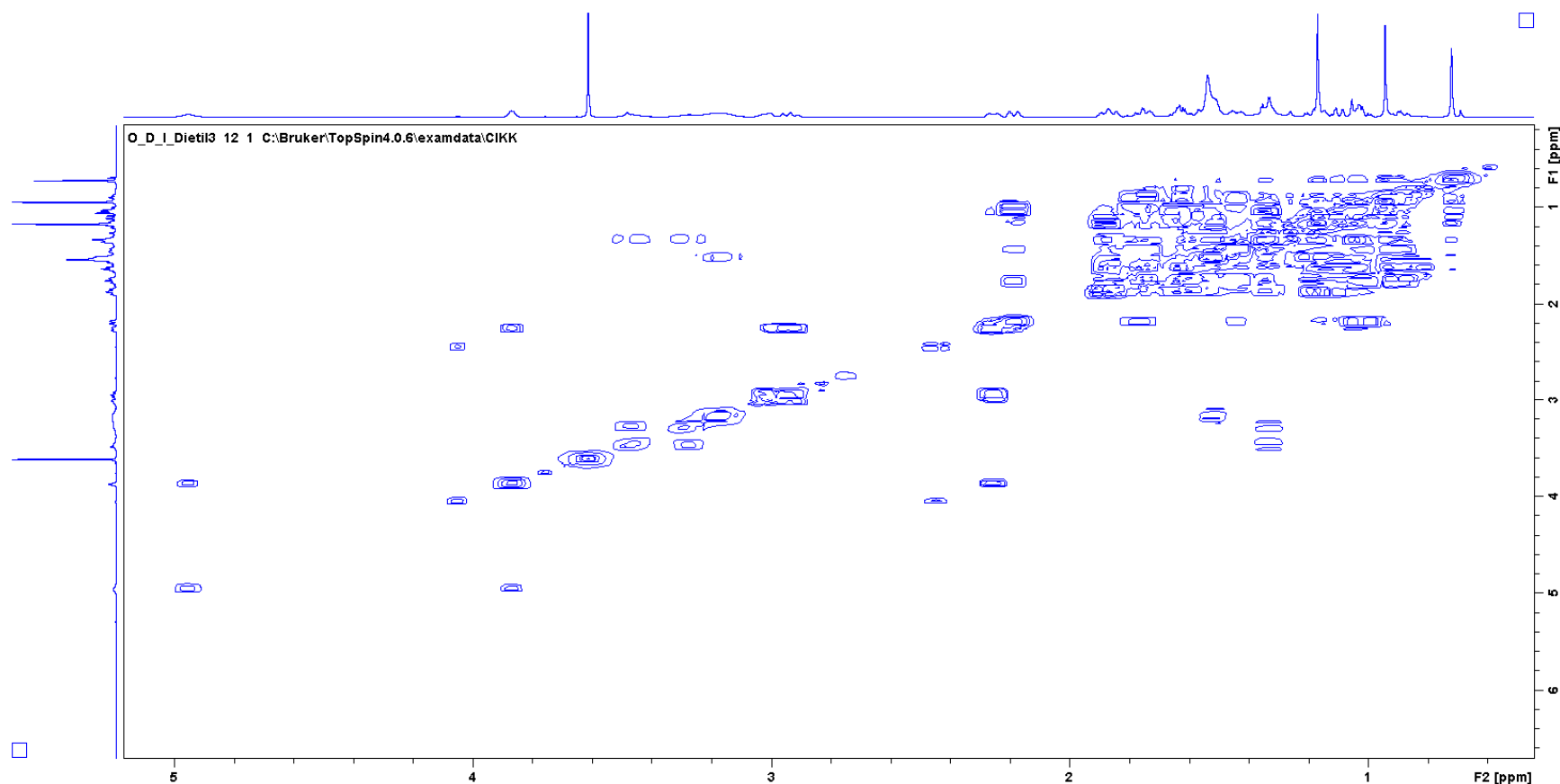
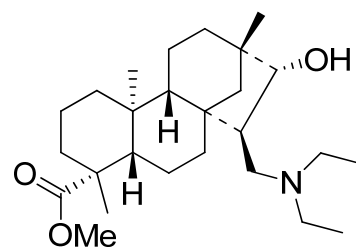
HMBC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23a**)



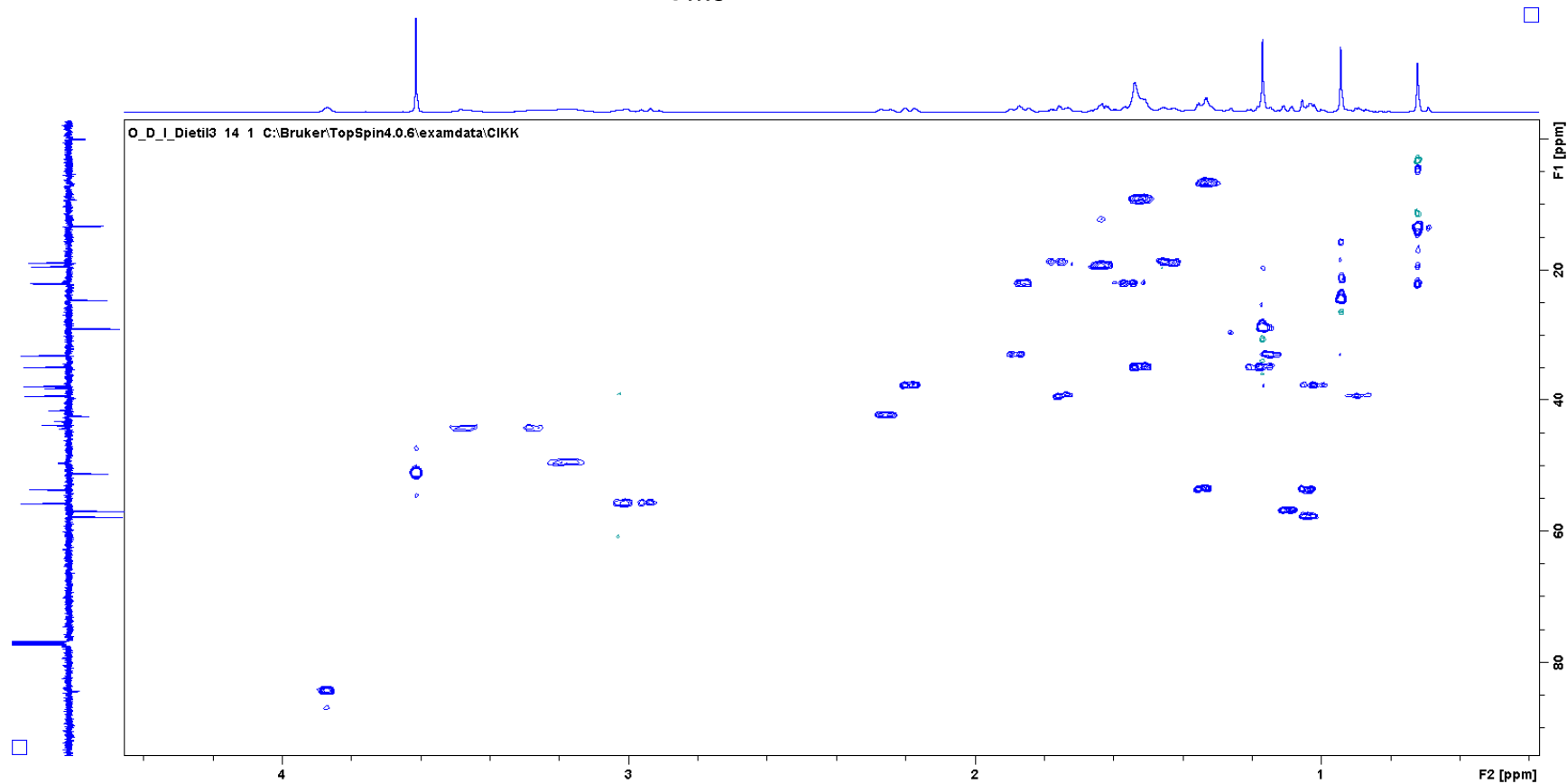
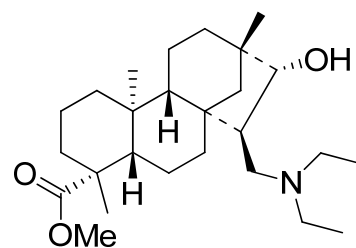
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23b**)



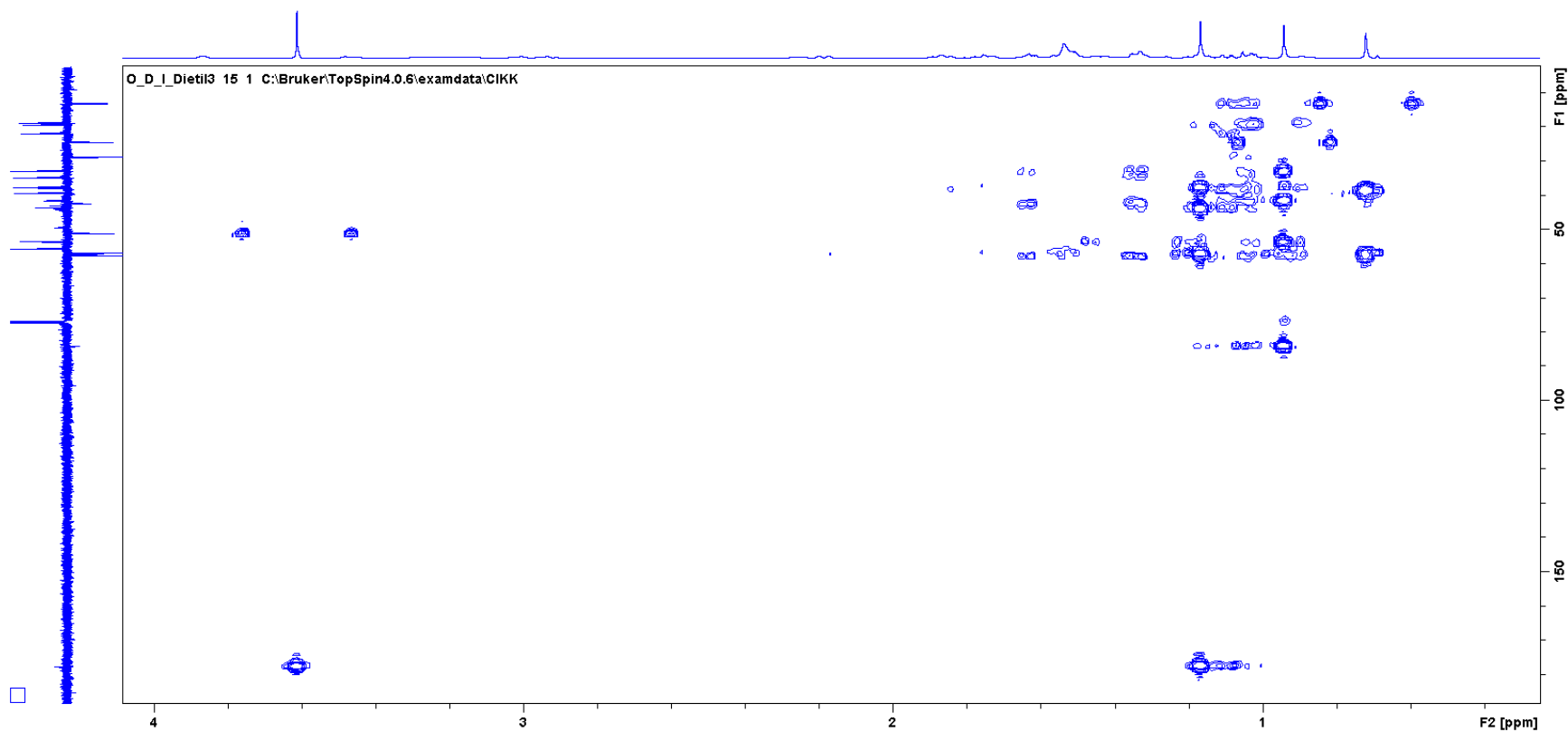
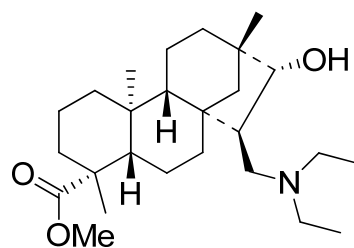
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23b**)



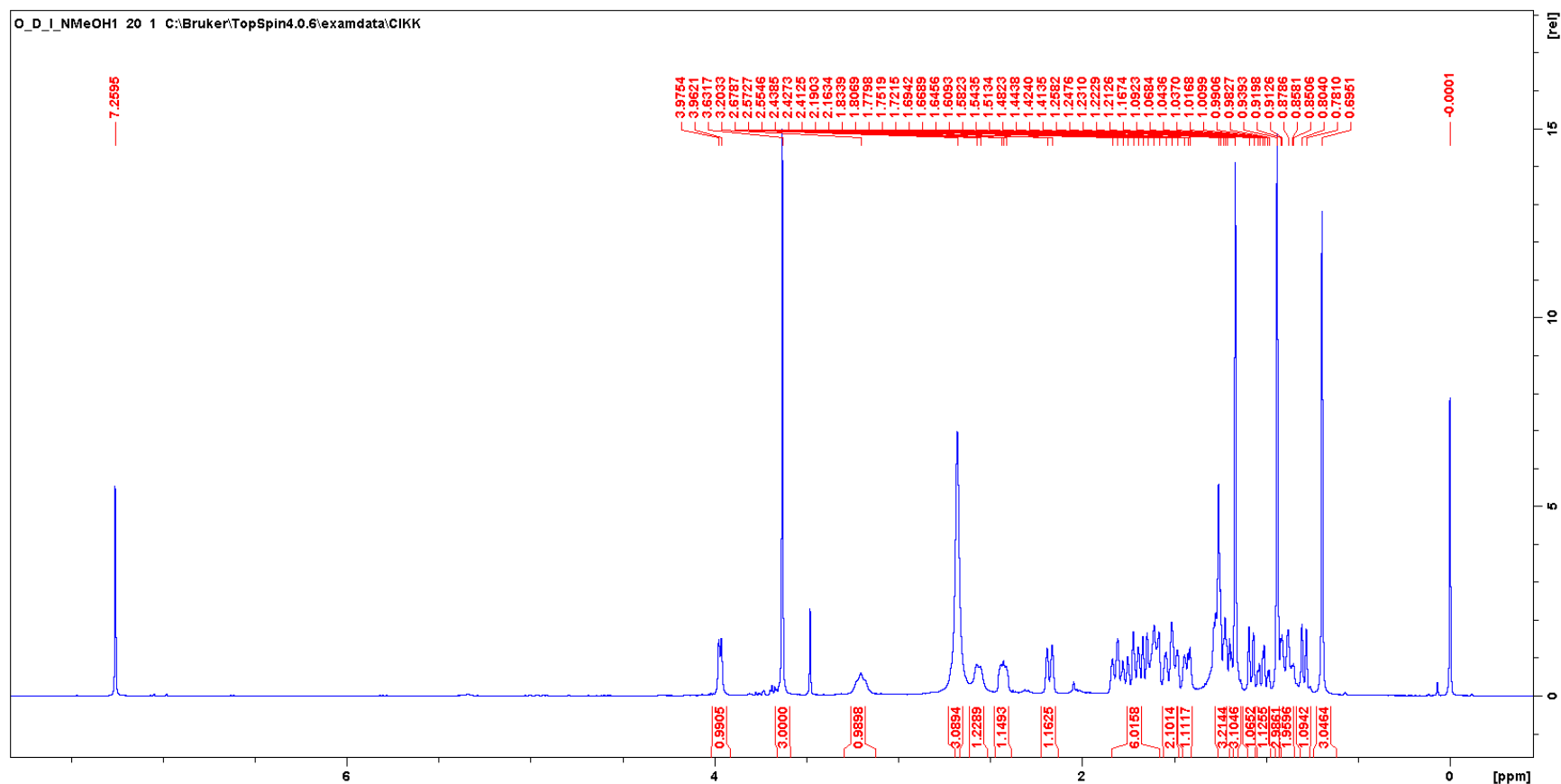
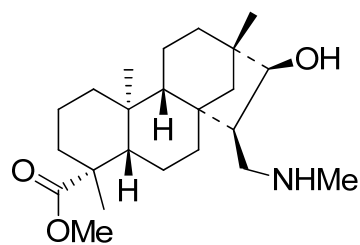
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23b**)



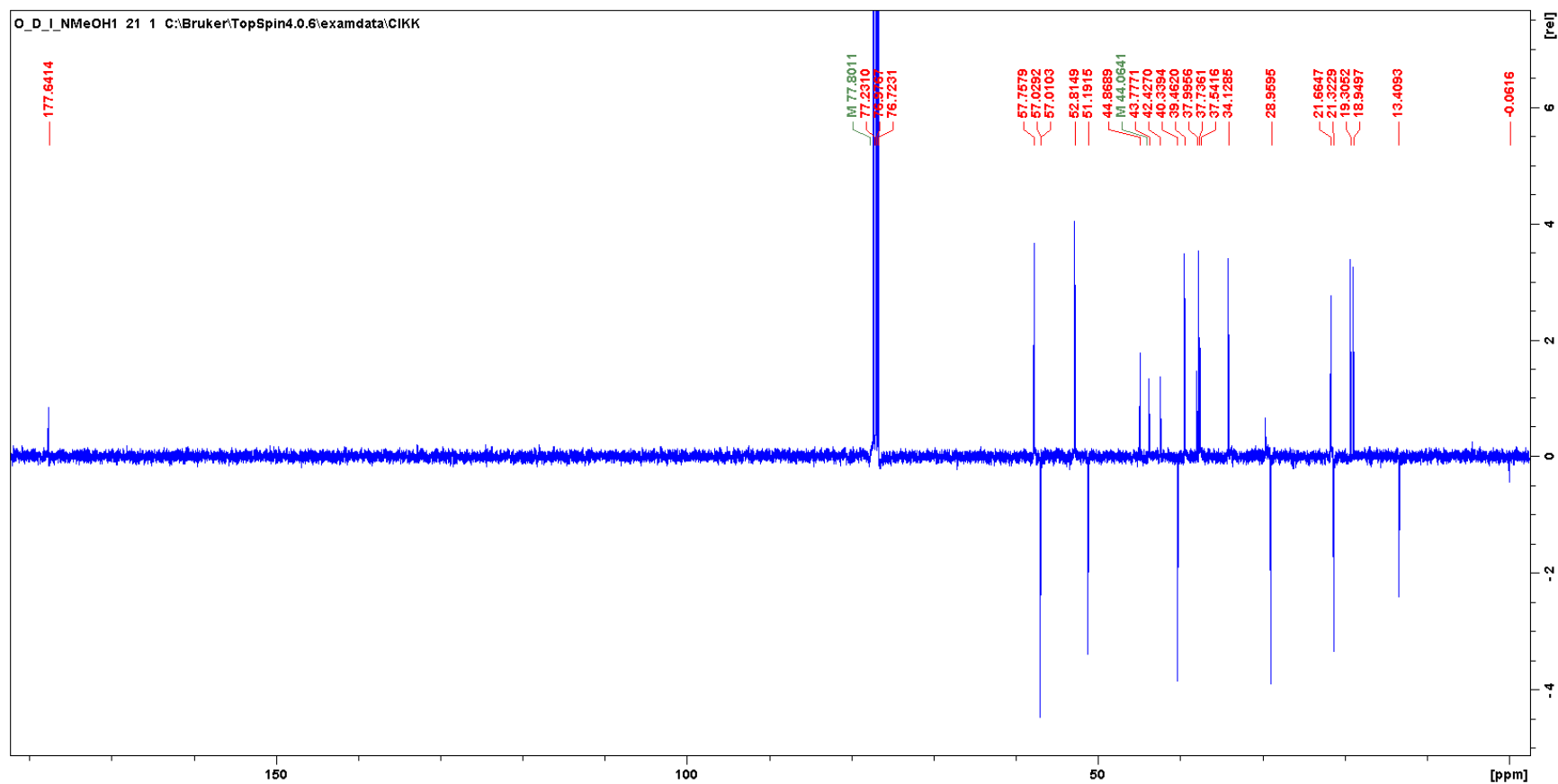
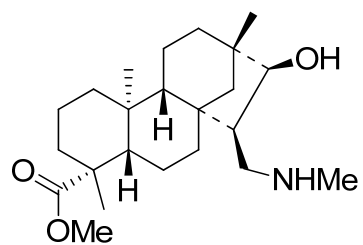
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 7-((diethylamino)methyl)-8-hydroxy-4,9,11*b*-trimethyltetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**23b**)



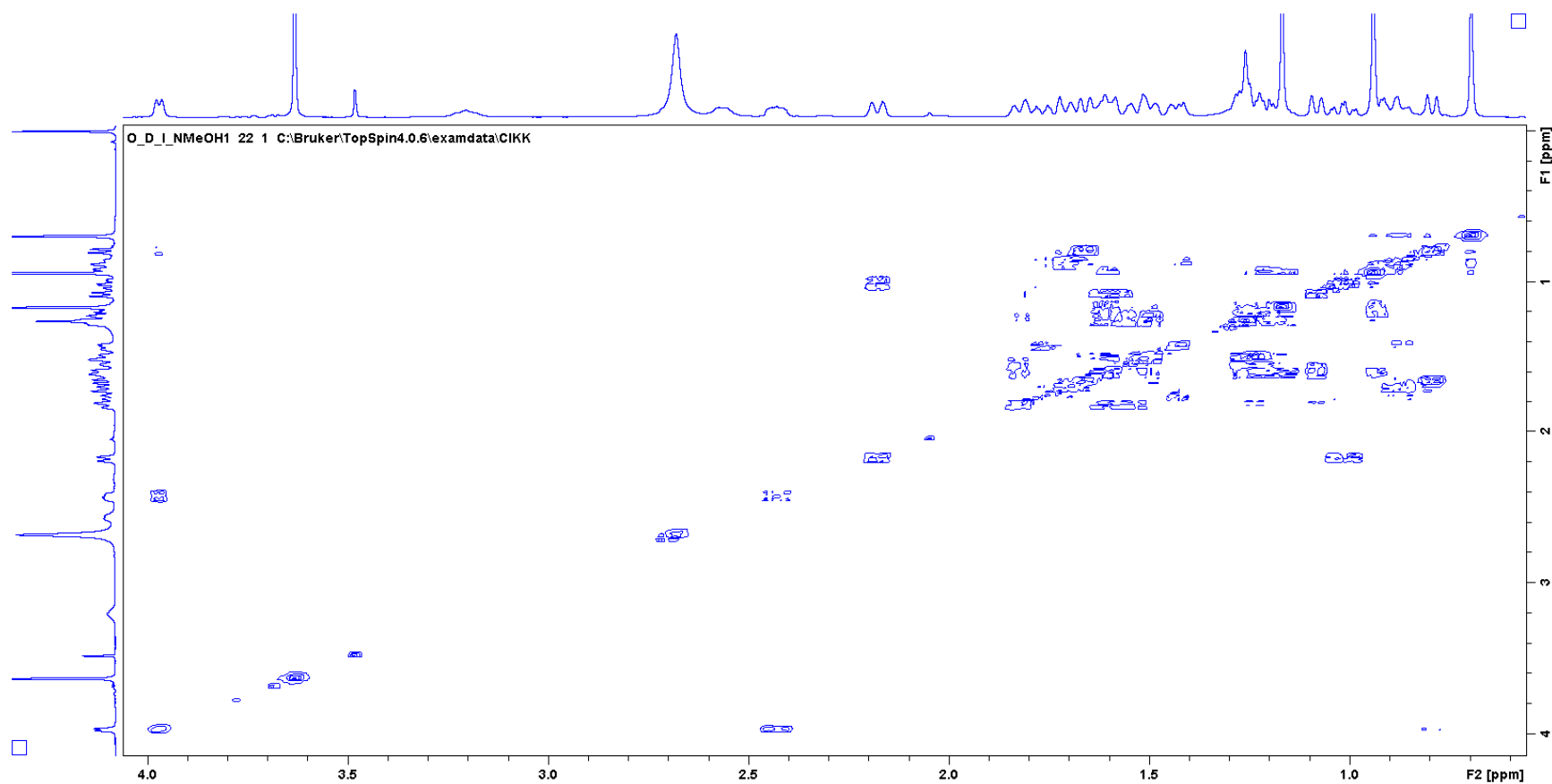
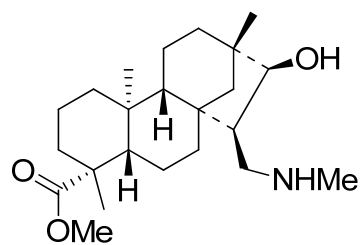
^1H -NMR of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((methylamino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**24**)



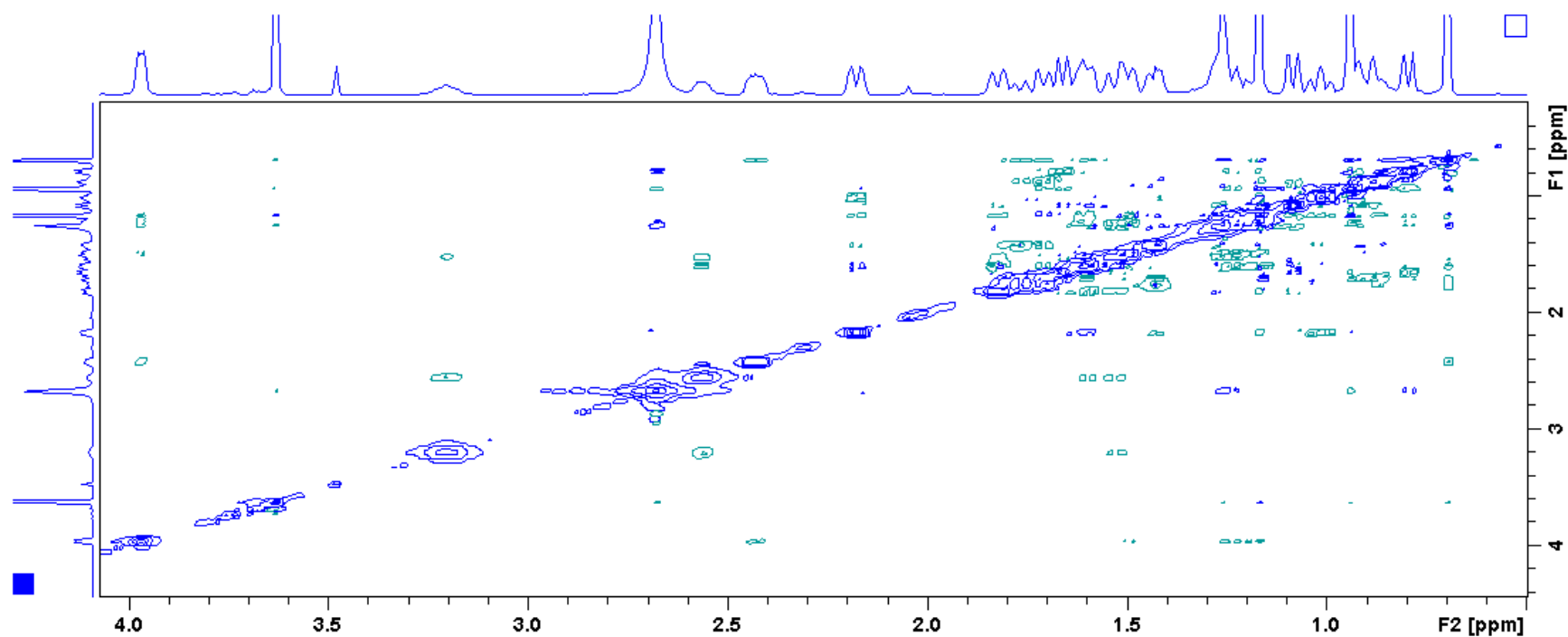
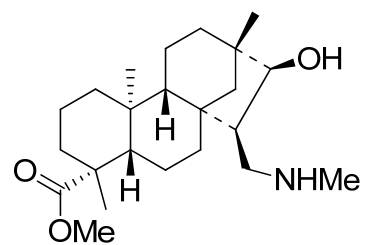
^{13}C -NMR of compound (4R,6aS,9S,11bS)-Methyl 8-hydroxy-4,9,11b-trimethyl-7-((methylamino)methyl)tetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**24**)



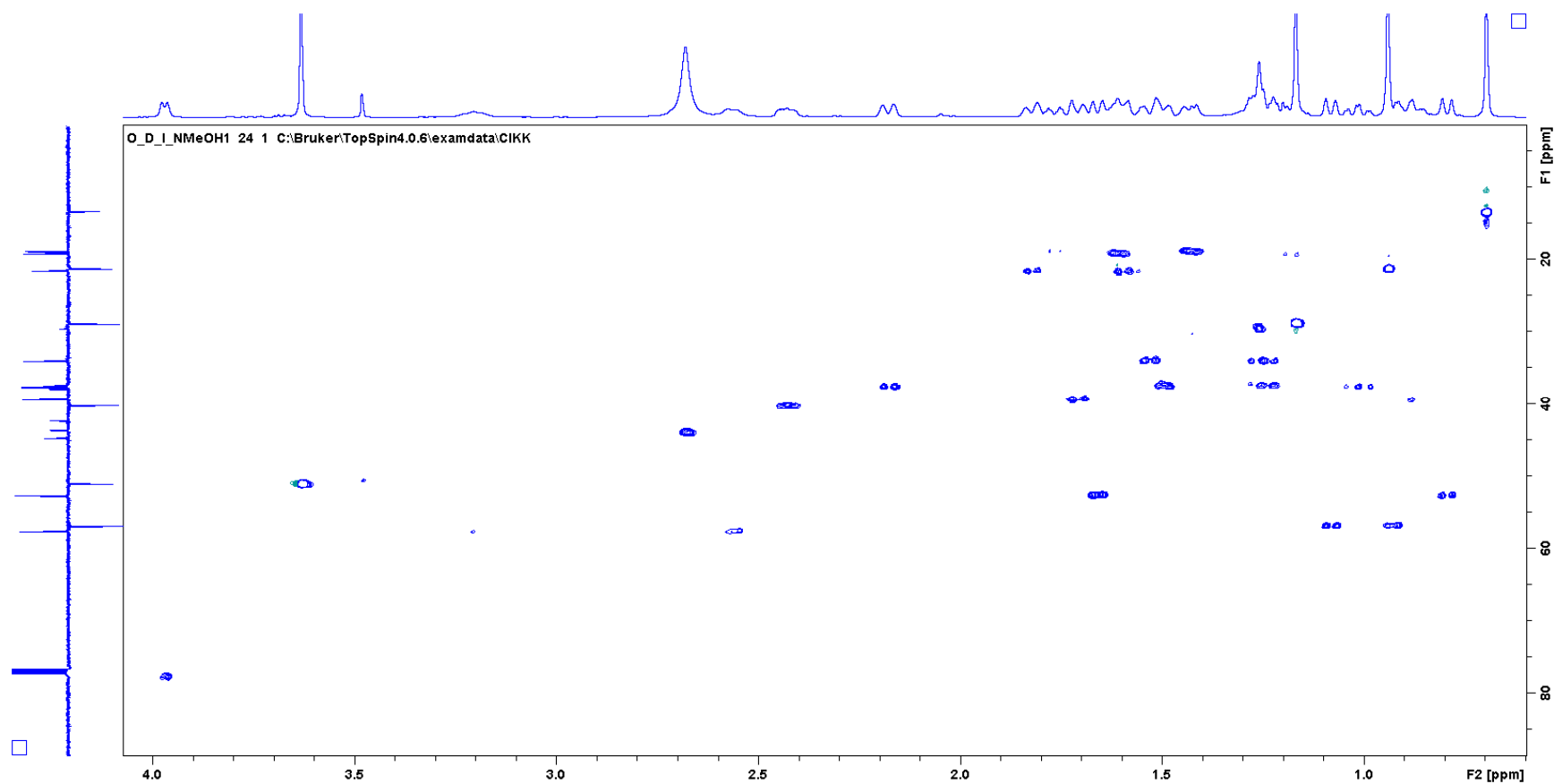
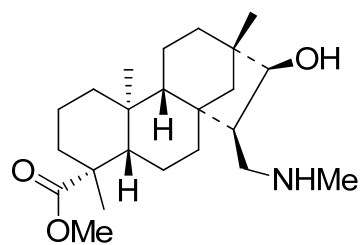
COSY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((methylamino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**24**)



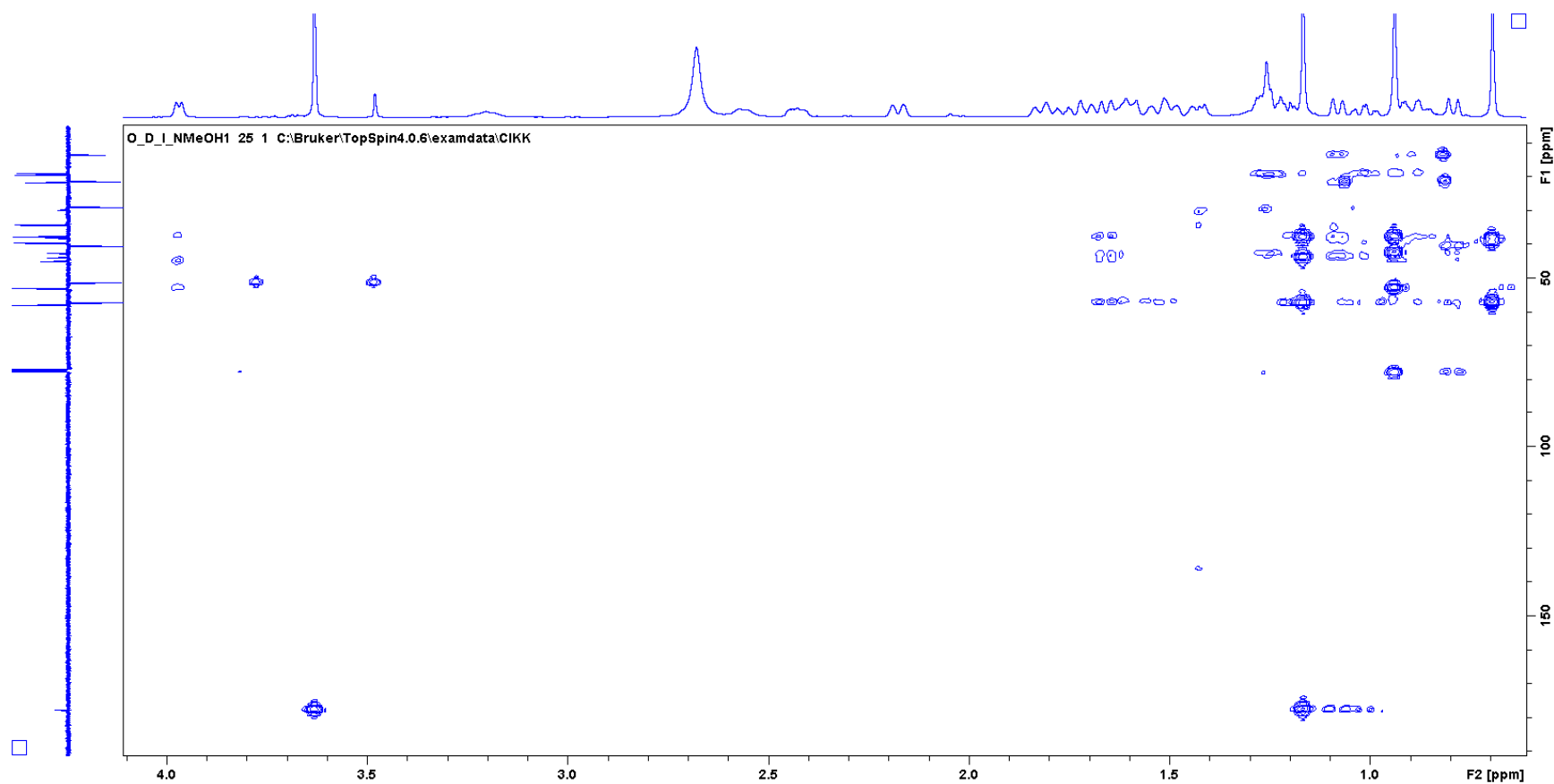
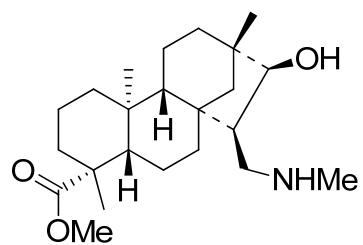
NOESY of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((methylamino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**24**)



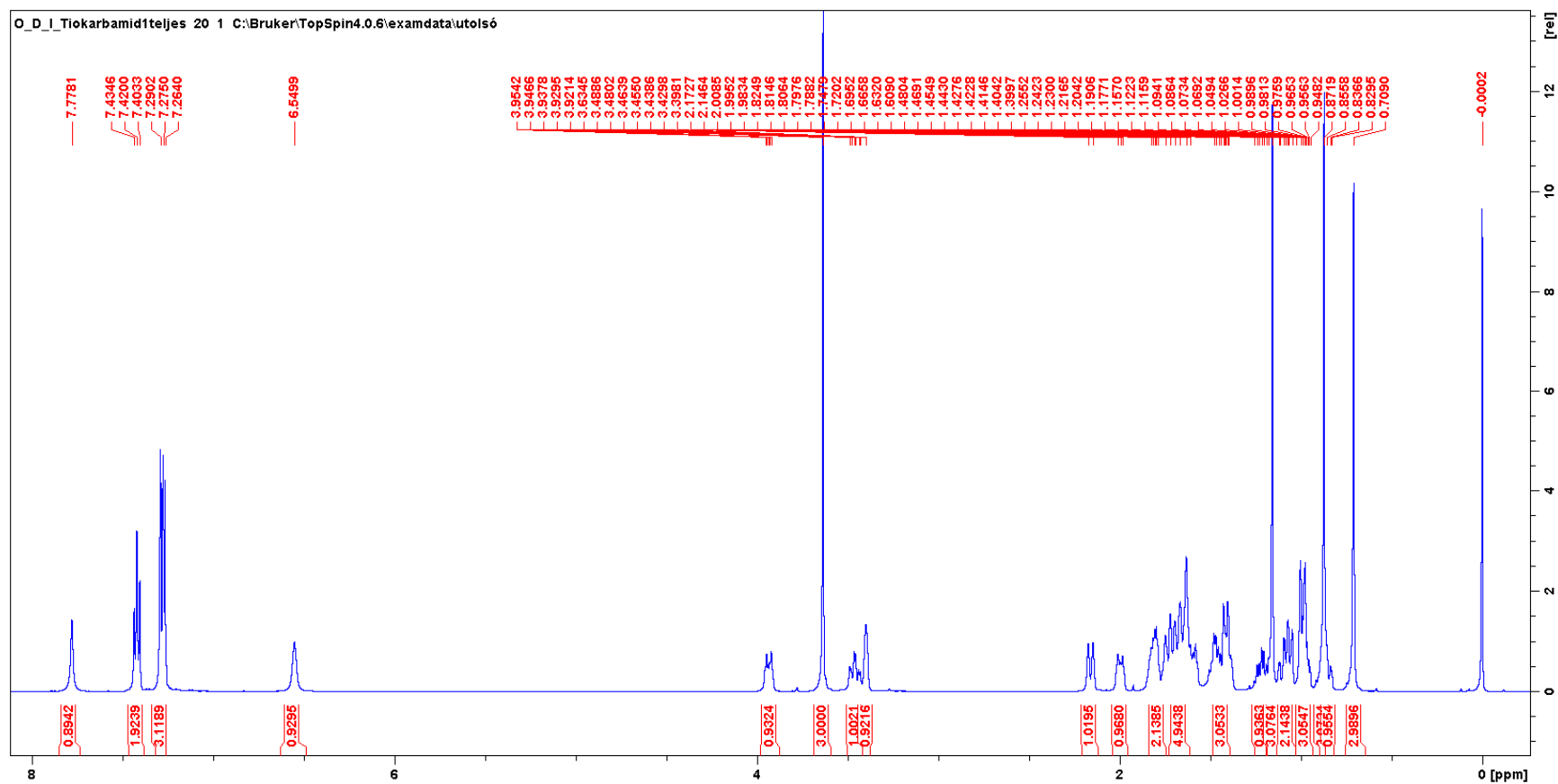
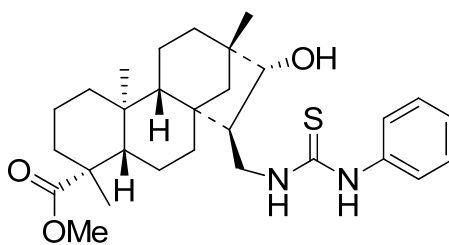
HSQC of compound (4*R*,6*aS*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((methylamino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**24**)



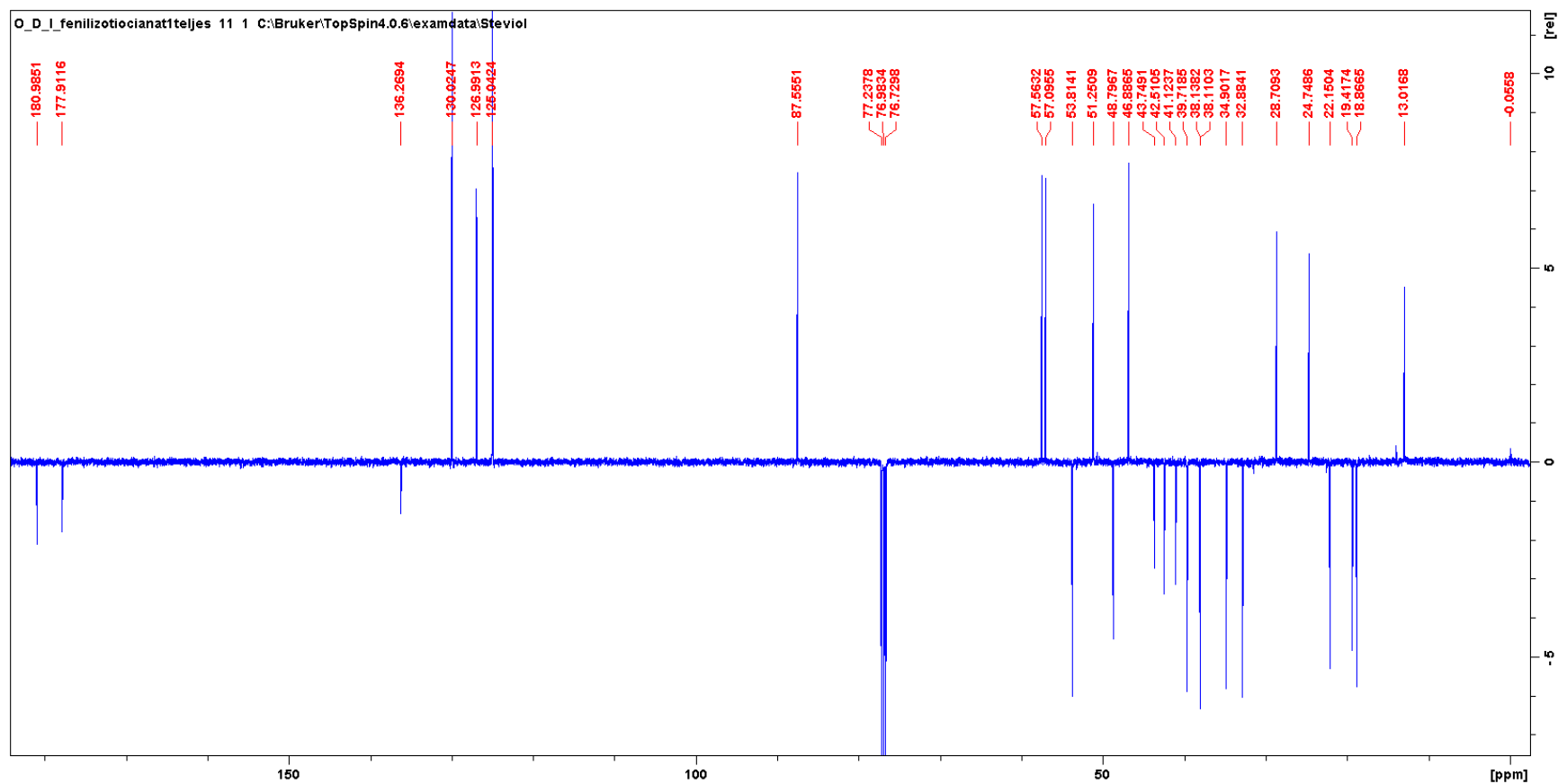
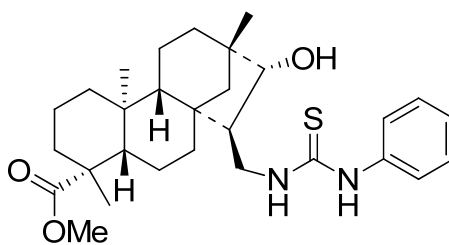
HMBC of compound (4R,6aS,9S,11bS)-Methyl 8-hydroxy-4,9,11b-trimethyl-7-((methylamino)methyl)tetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**24**)



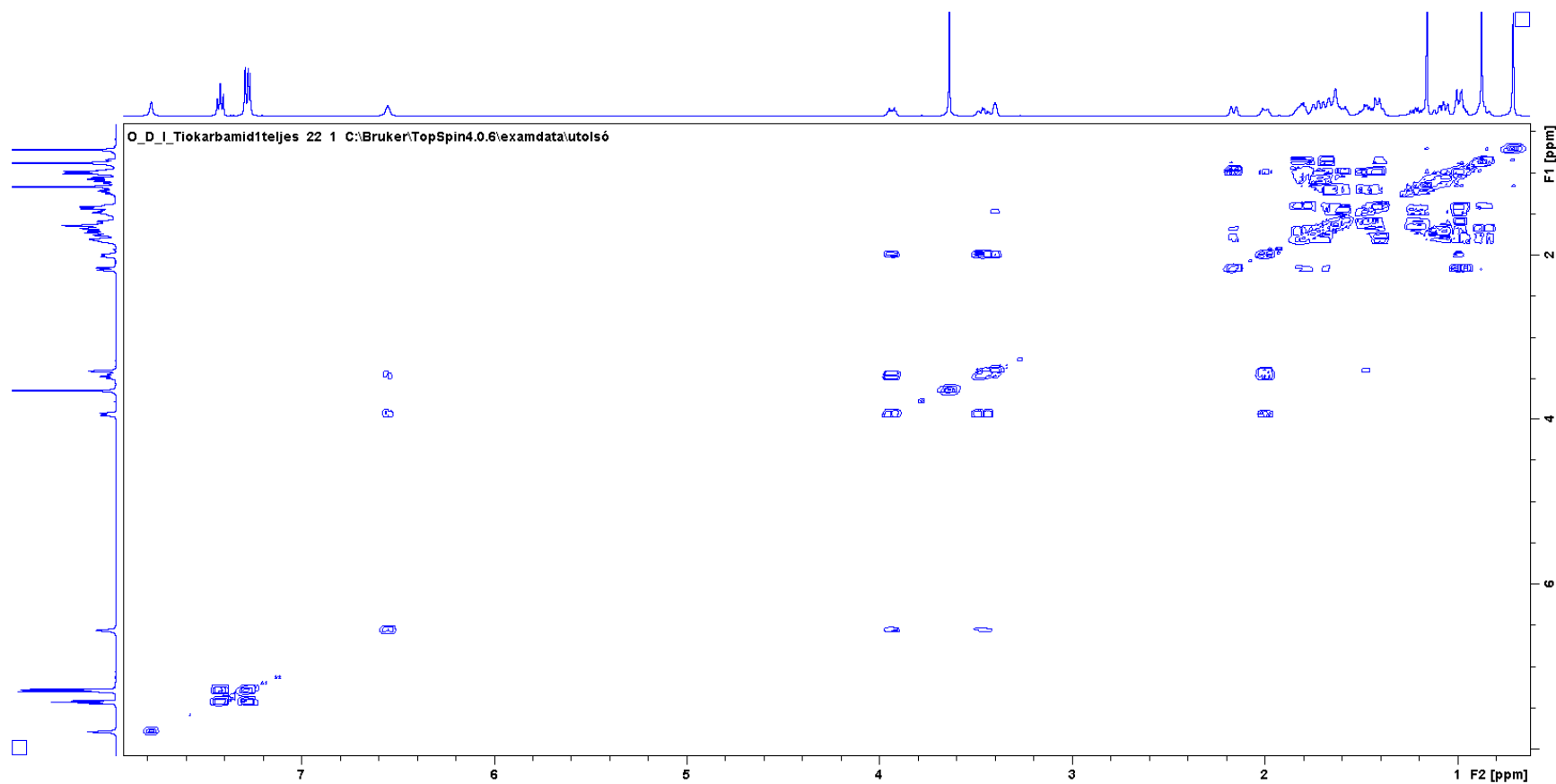
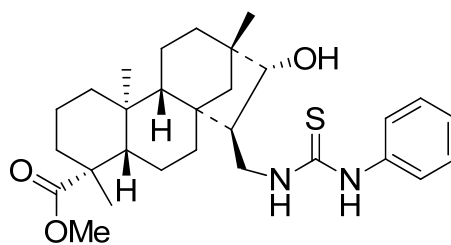
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((3-phenylthioureido)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**25**)



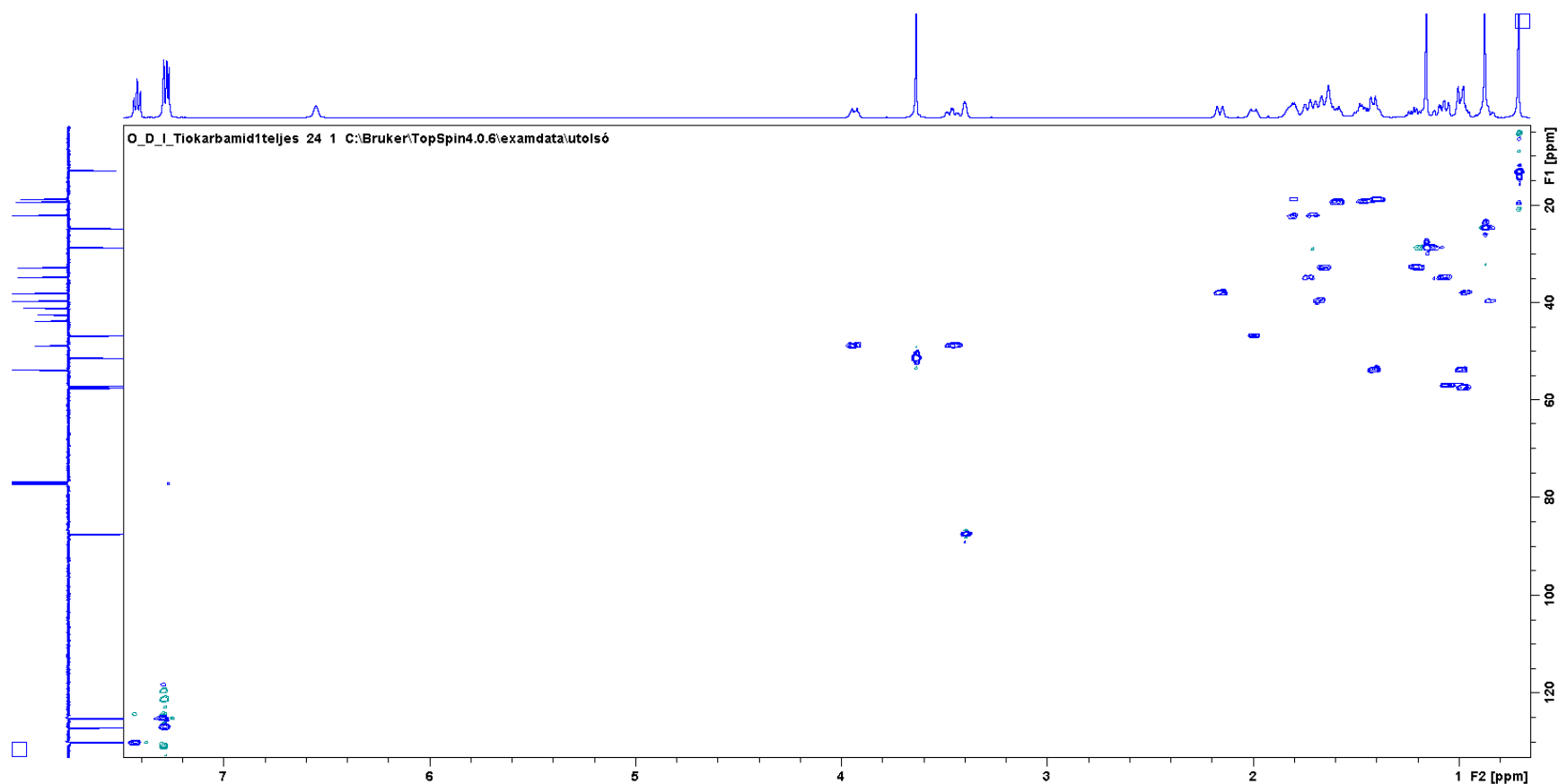
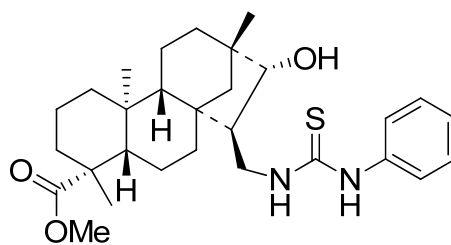
^{13}C -NMR of compound (4R,6aS,8R,9S,11bS)-Methyl 8-hydroxy-4,9,11b-trimethyl-7-((3-phenylthioureido)methyl)tetradecahydro-6a,9-methanocyclohepta[a]naphthalene-4-carboxylate (**25**)



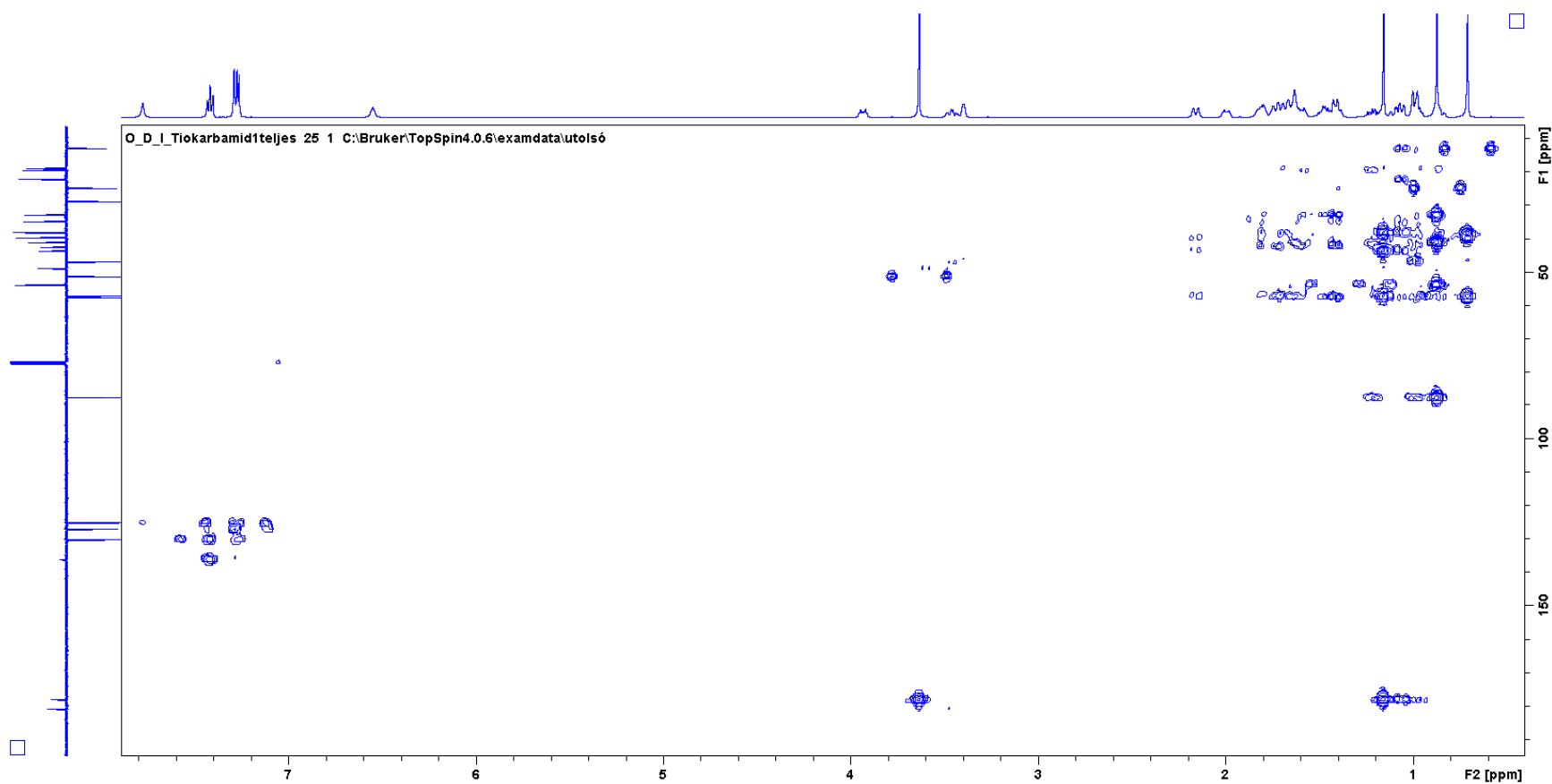
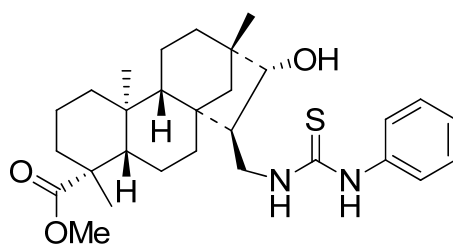
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((3-phenylthioureido)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**25**)



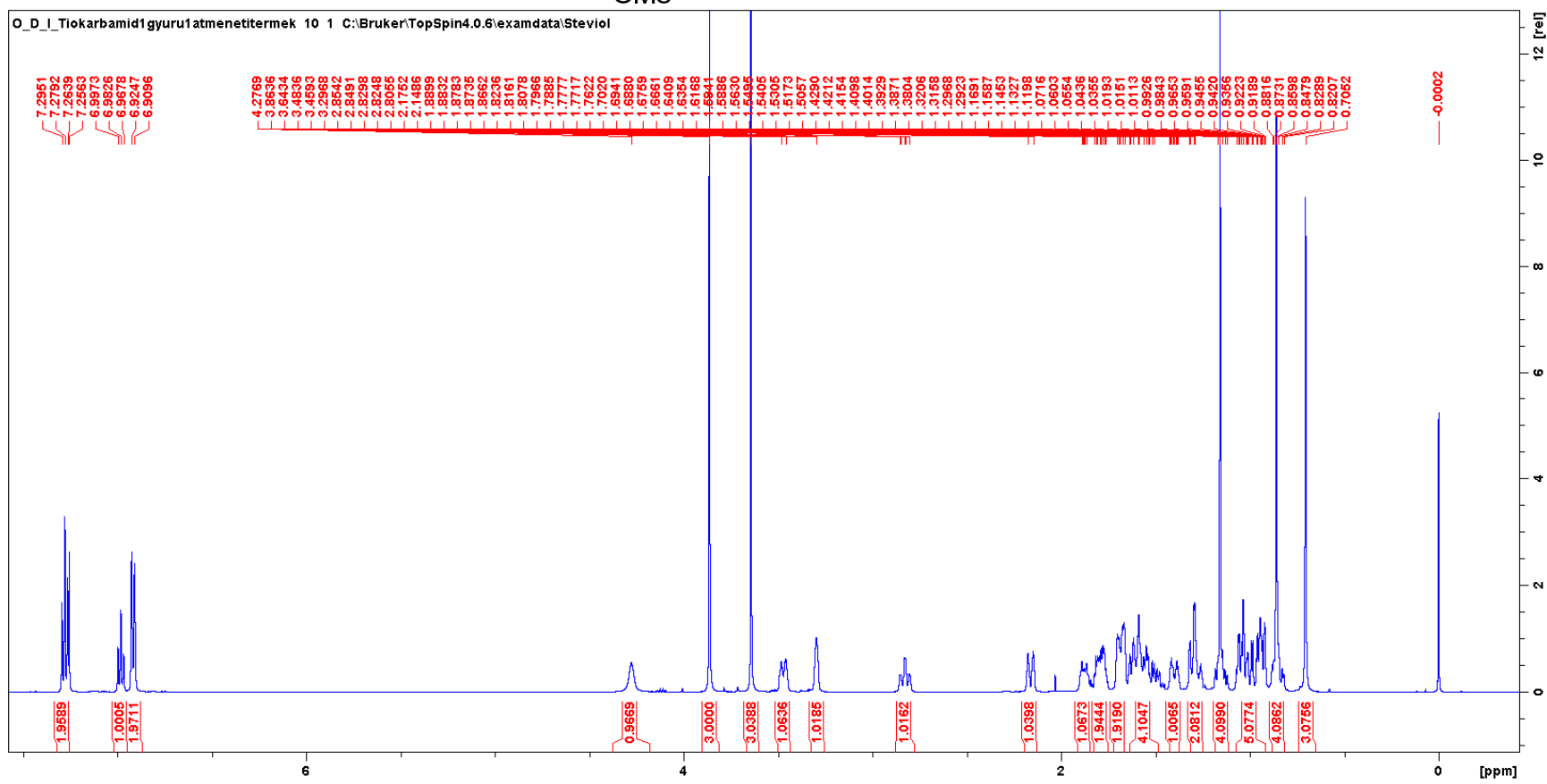
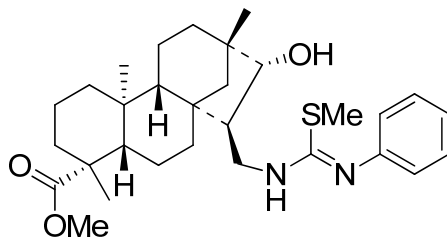
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((3-phenylthioureido)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**25**)



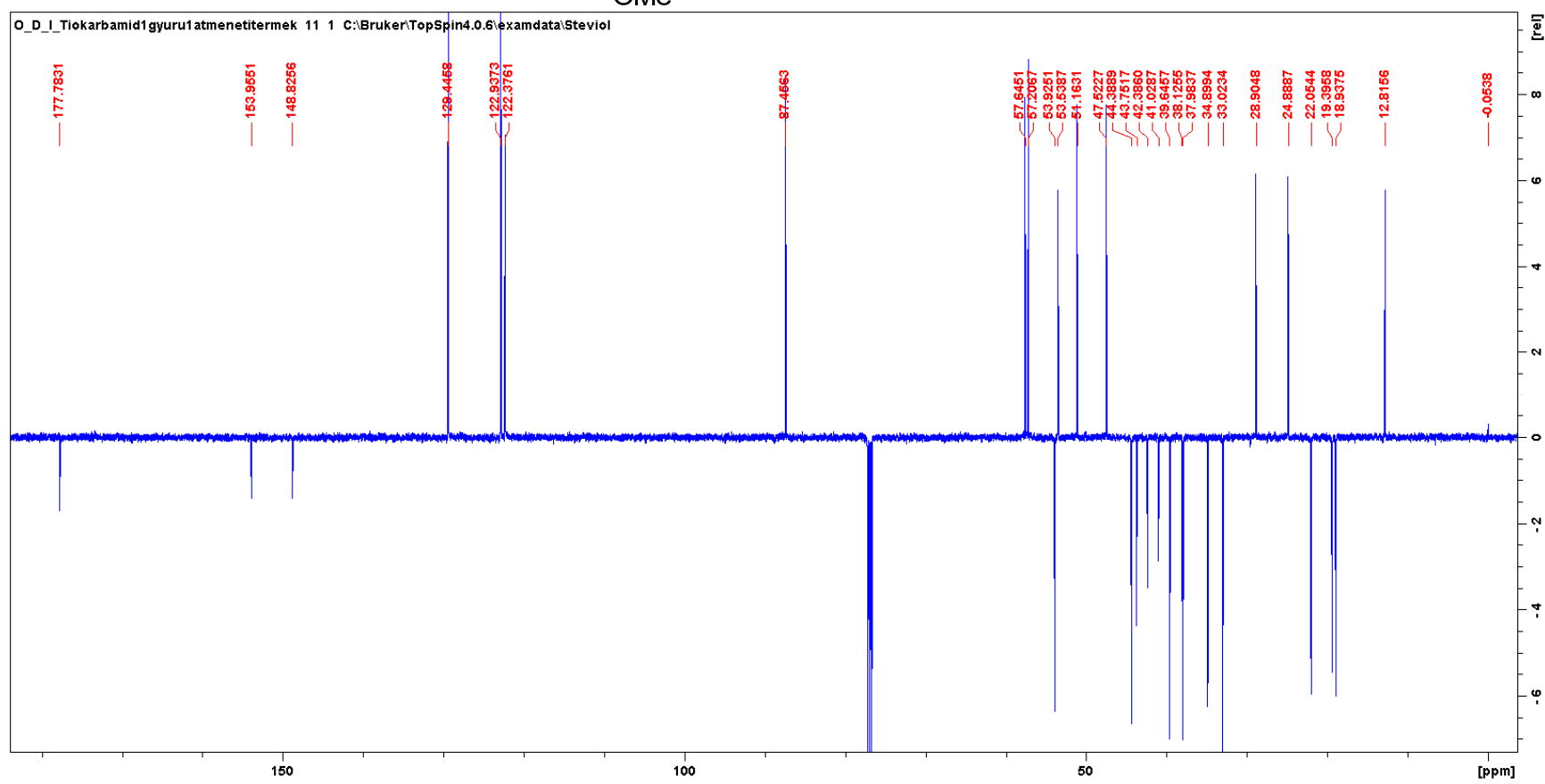
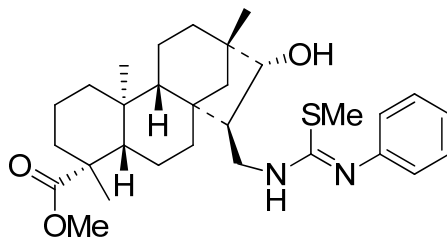
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-((3-phenylthioureido)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (**25**)



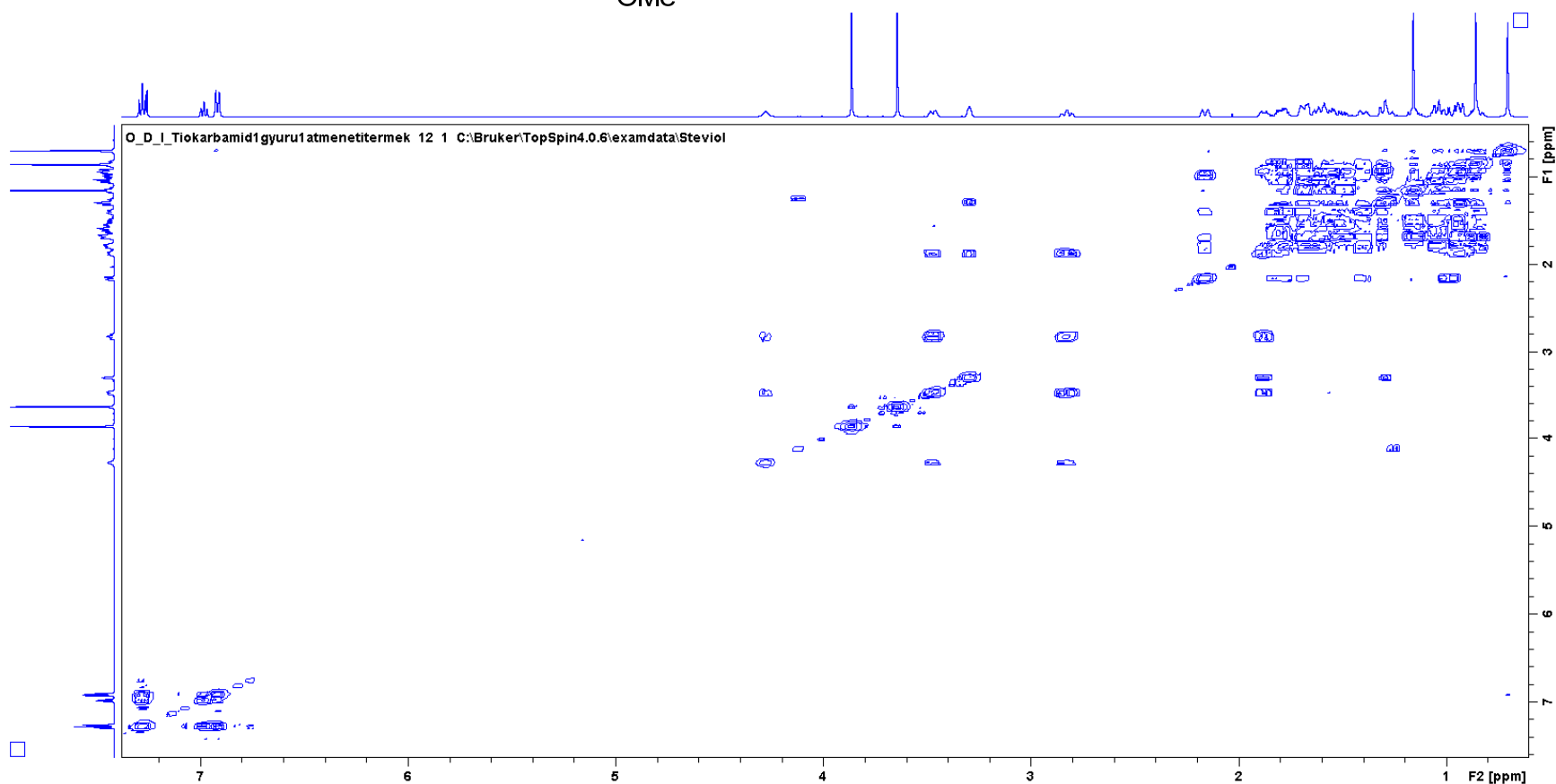
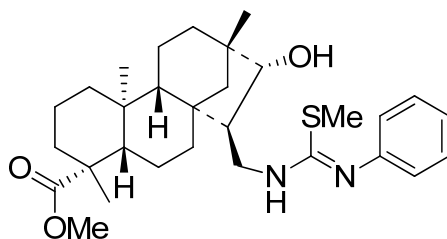
¹H-NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((methylthio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (26)



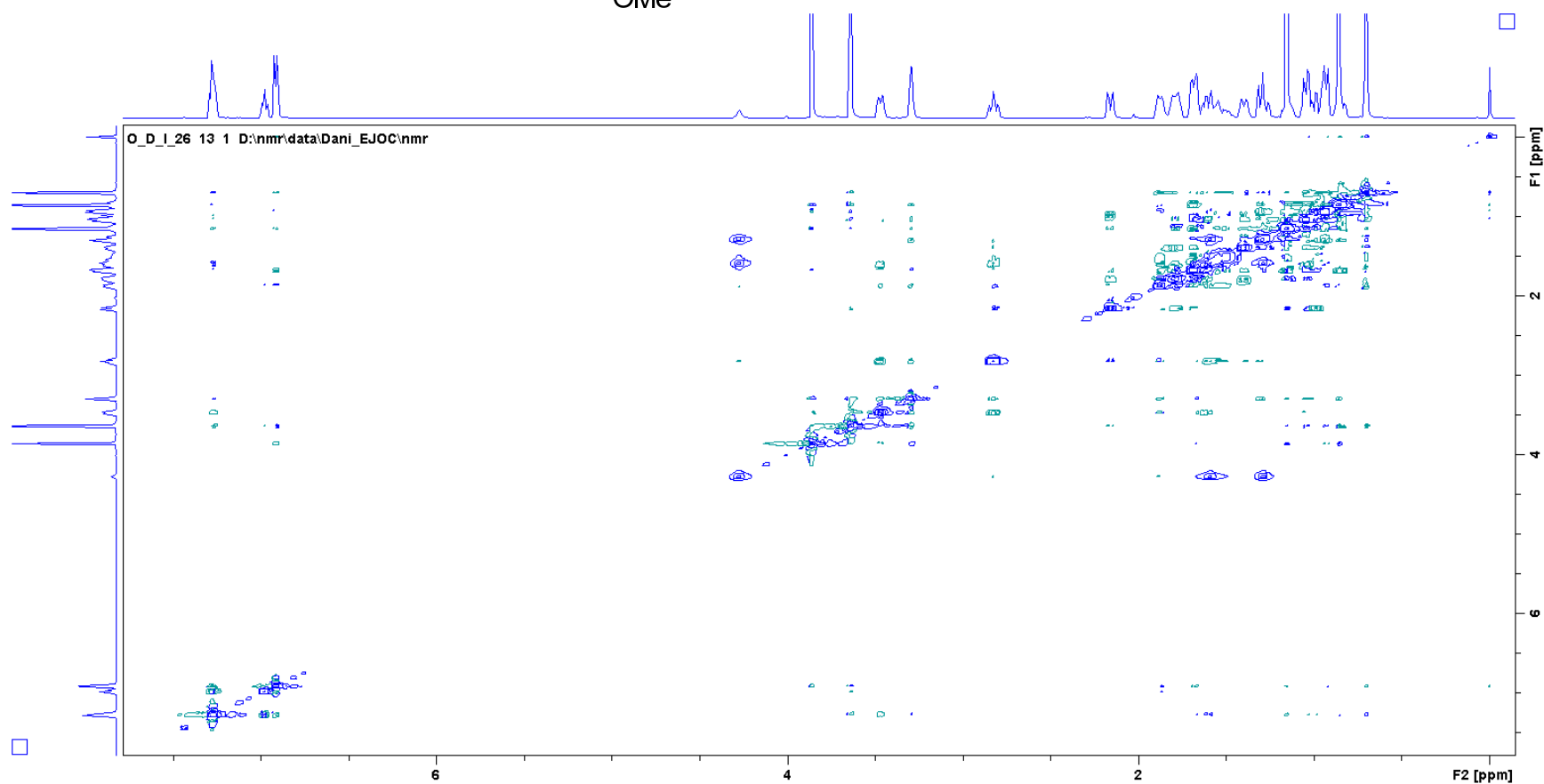
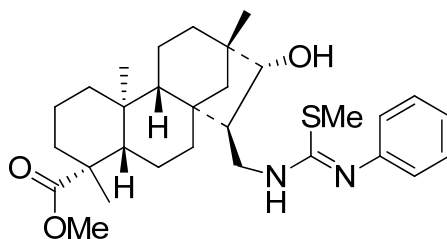
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((methylthio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (26)



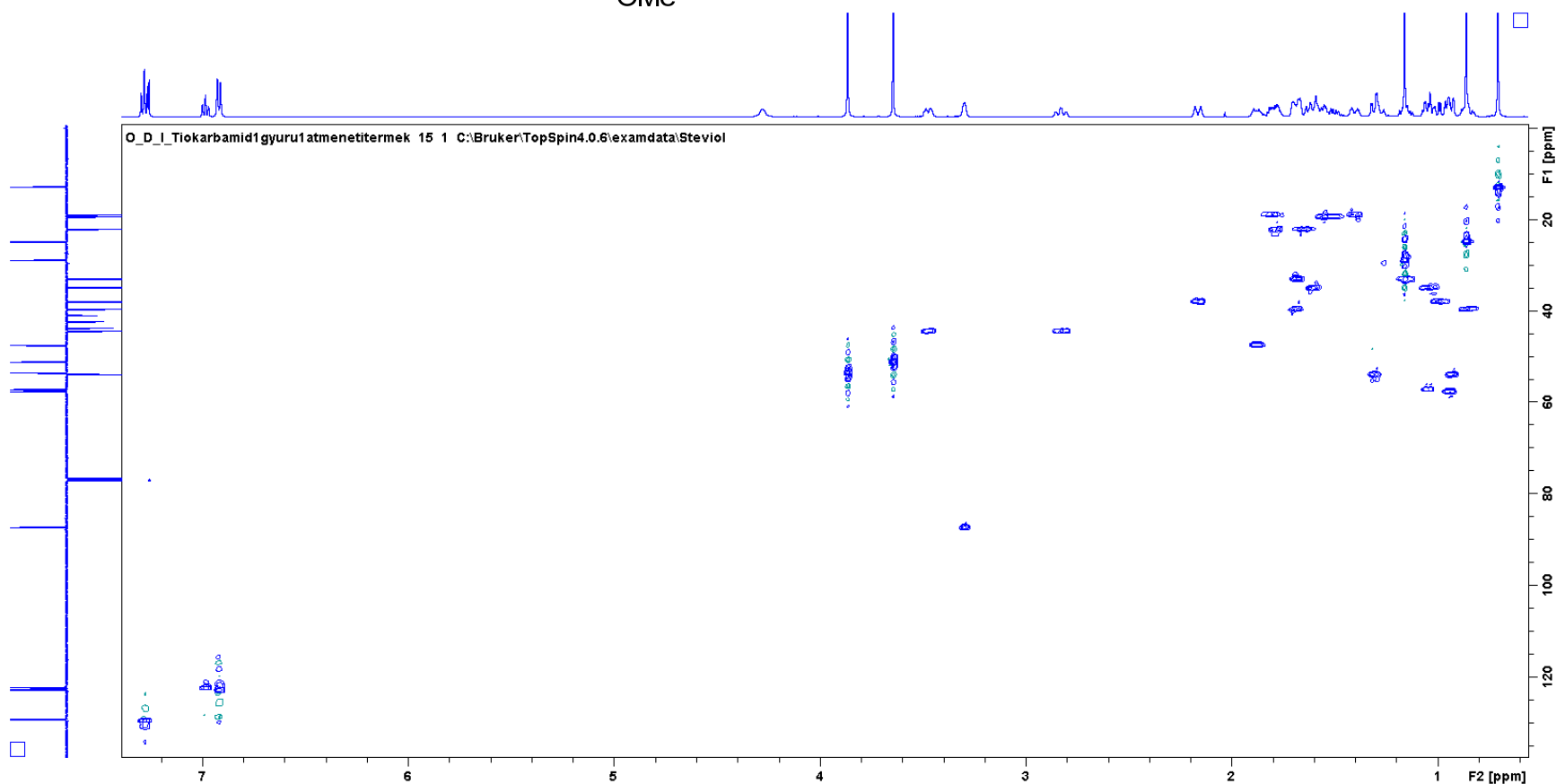
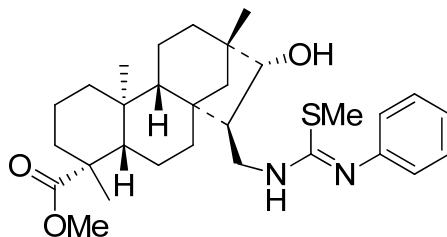
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((methylthio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (26)



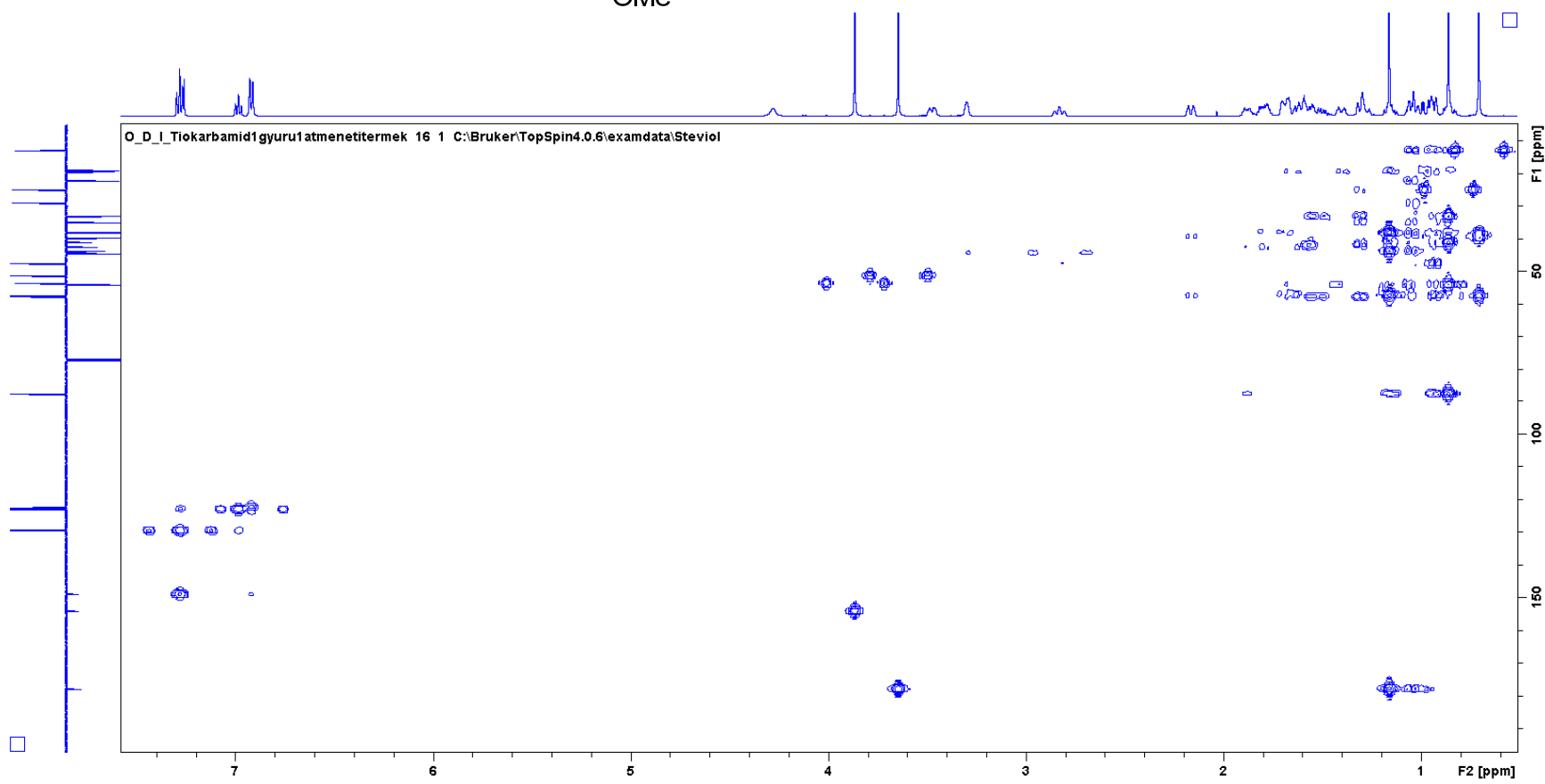
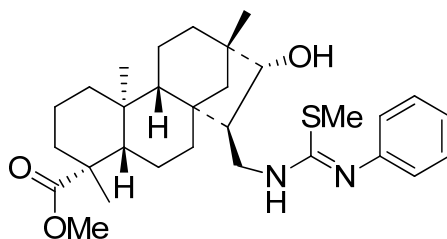
NOESY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((methylthio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (26)



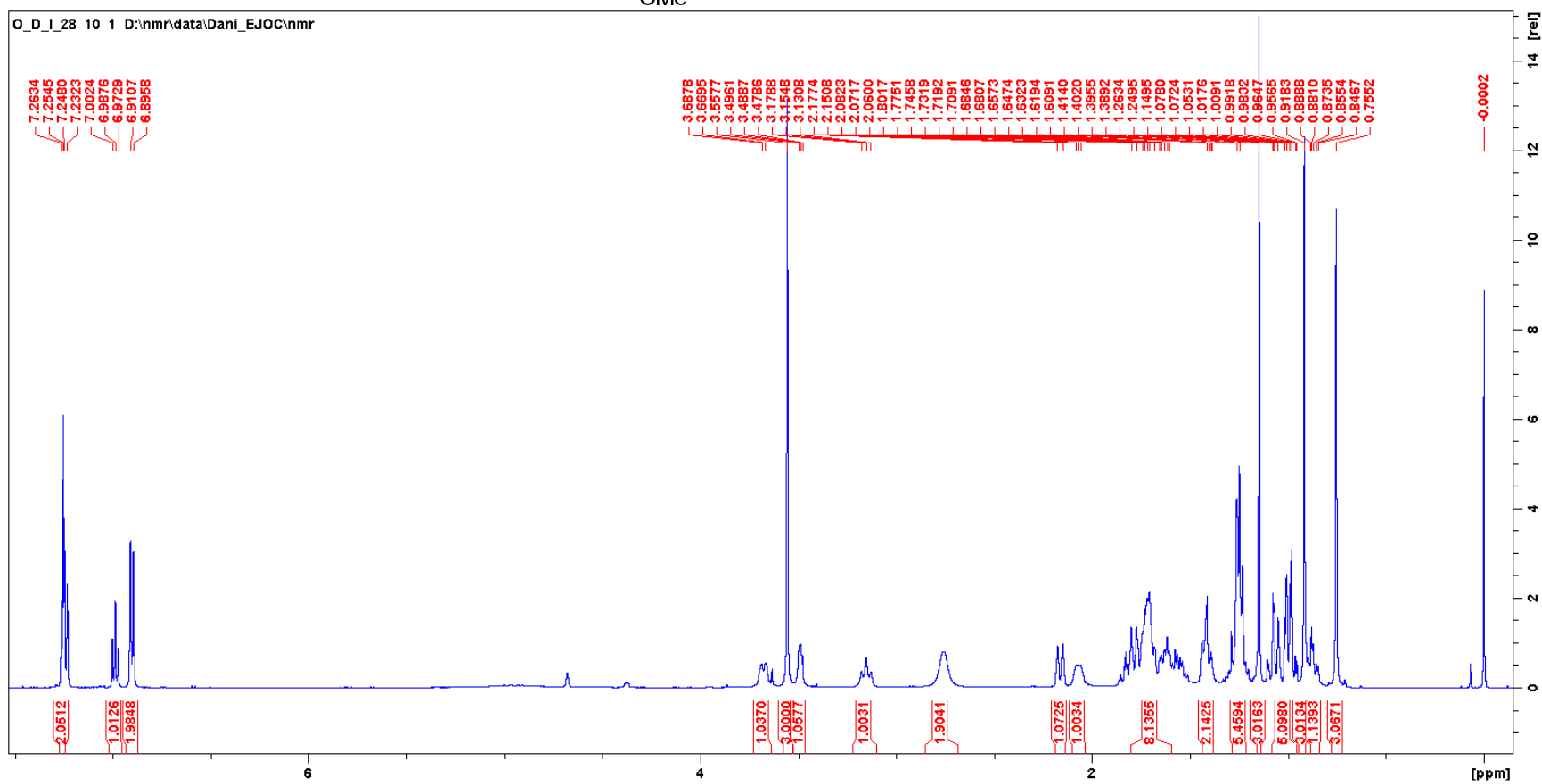
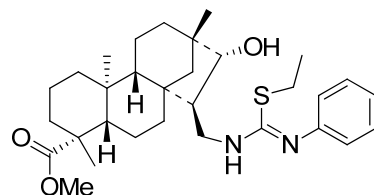
HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((methylthio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (26)



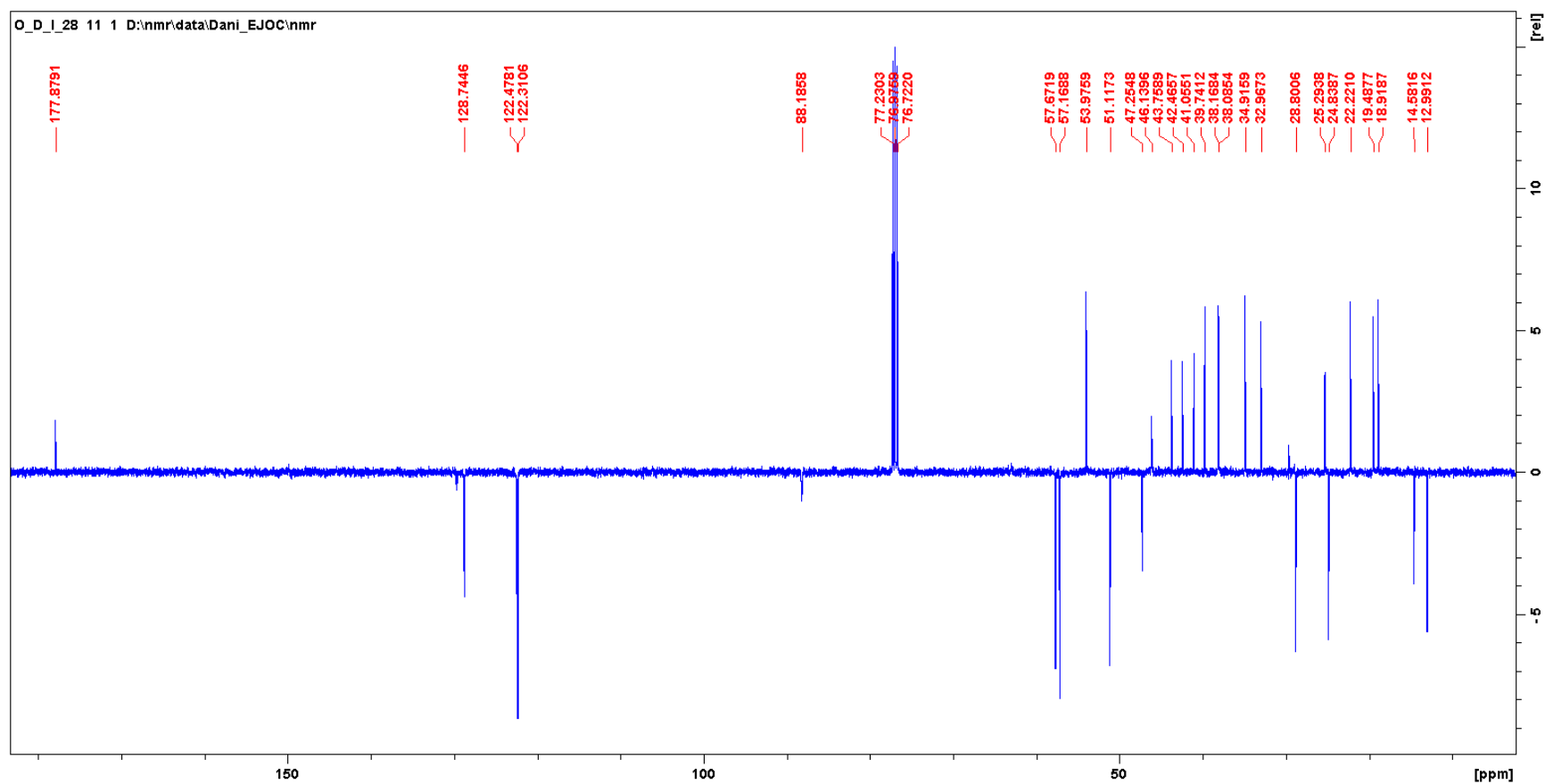
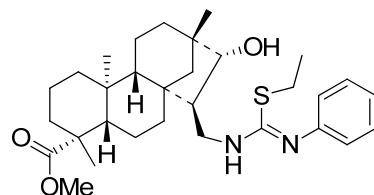
HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((methylthio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (26)



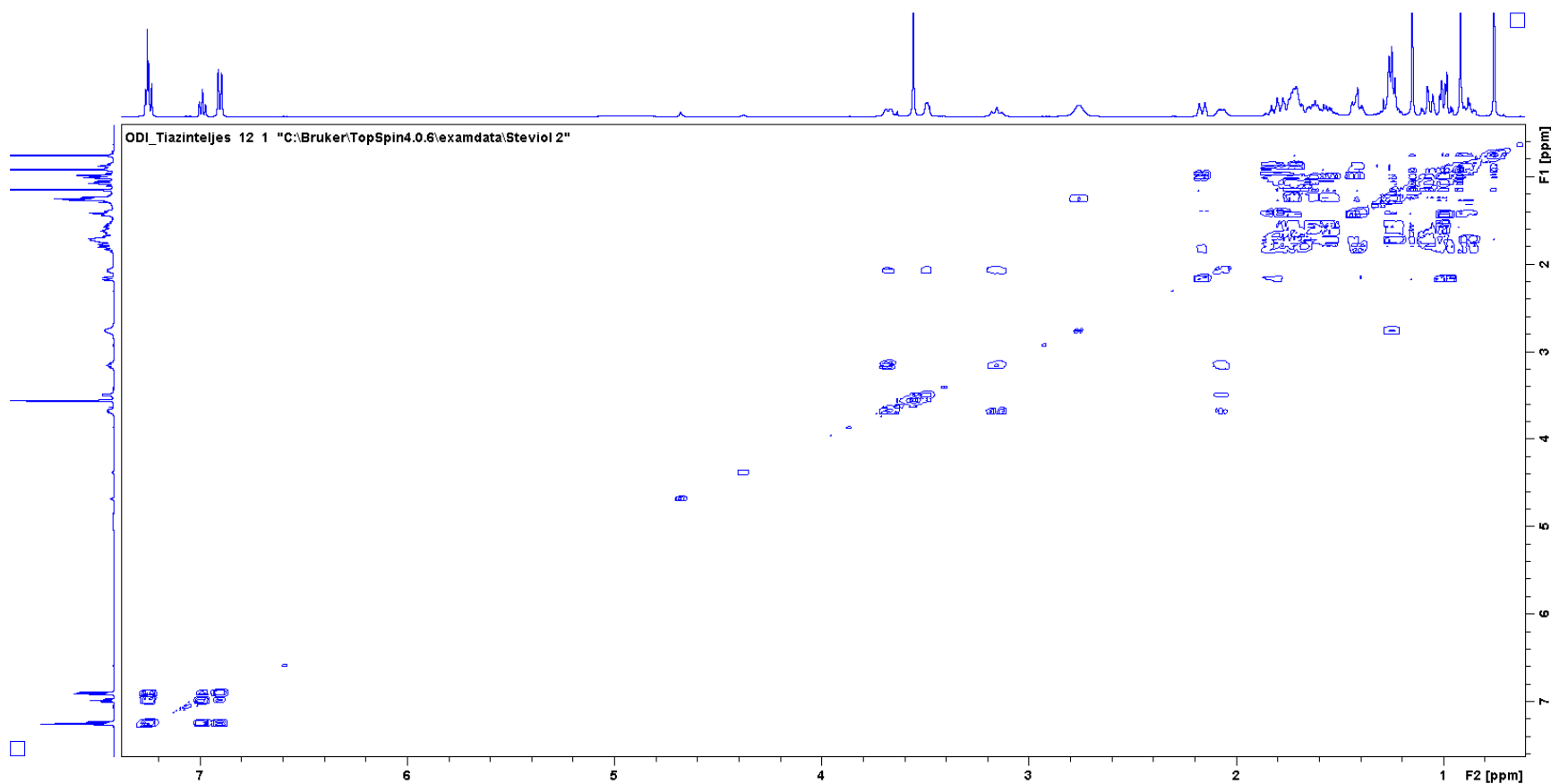
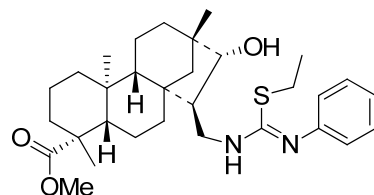
^1H -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((ethythio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (28)



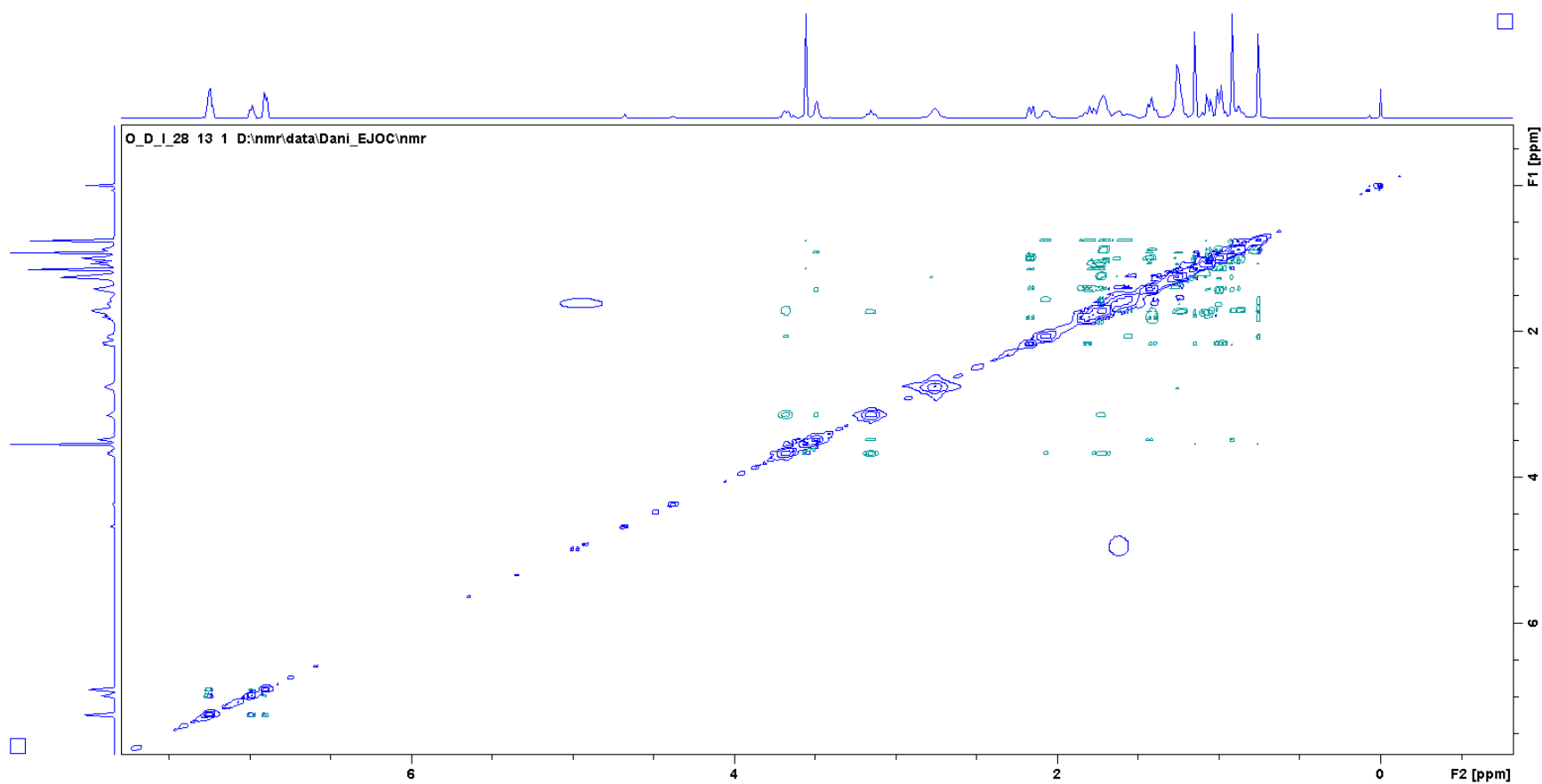
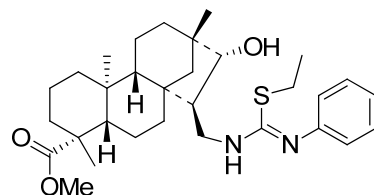
^{13}C -NMR of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((ethythio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (28)



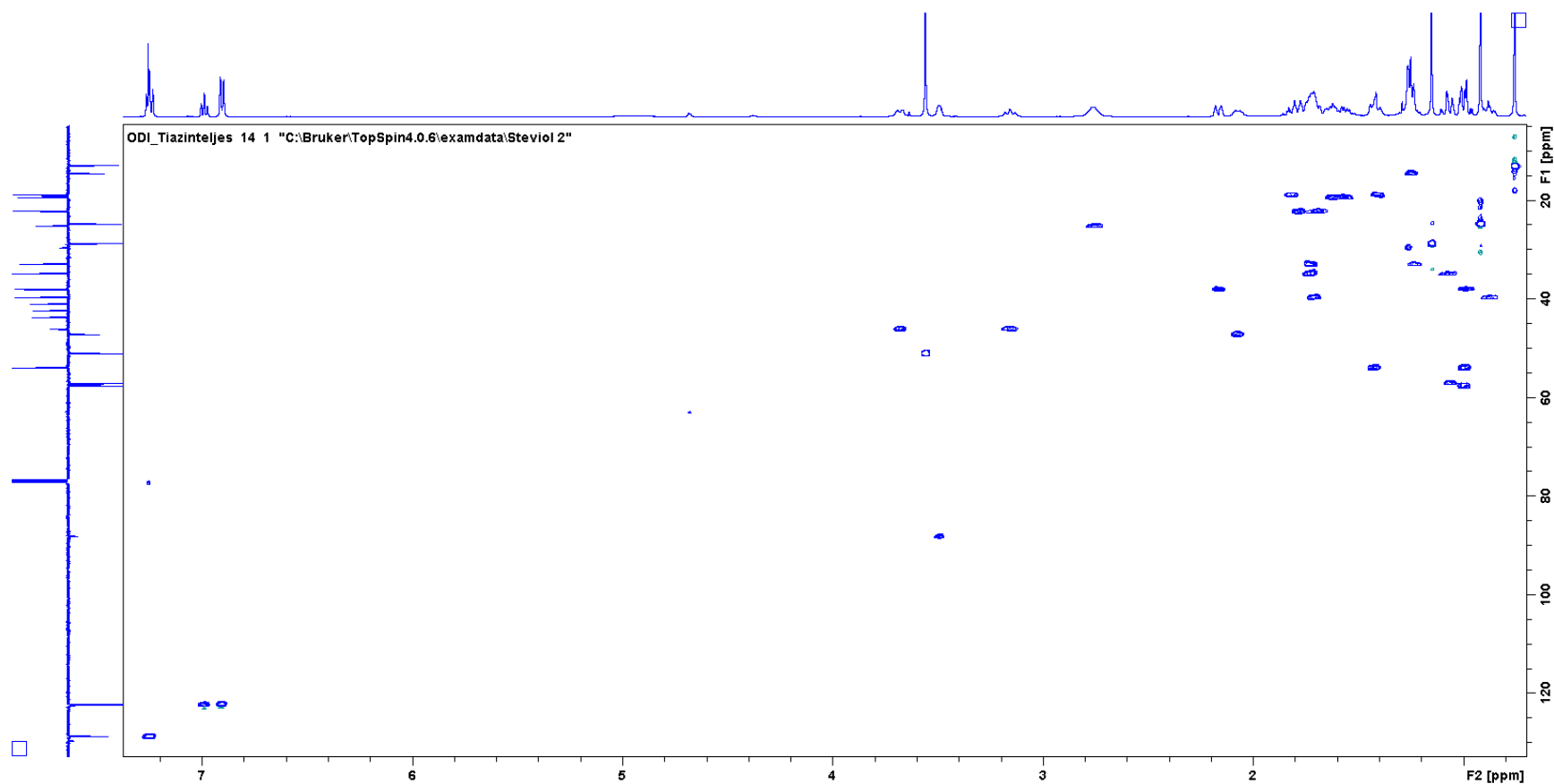
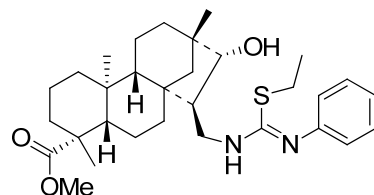
COSY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((ethythio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (28)



NOESY of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((ethythio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (28)



HSQC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((ethythio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (28)



HMBC of compound (4*R*,6*aS*,8*R*,9*S*,11*bS*)-Methyl 8-hydroxy-4,9,11*b*-trimethyl-7-(((ethythio)(phenylimino)methyl)amino)methyl)tetradecahydro-6*a*,9-methanocyclohepta[*a*]naphthalene-4-carboxylate (28)

