

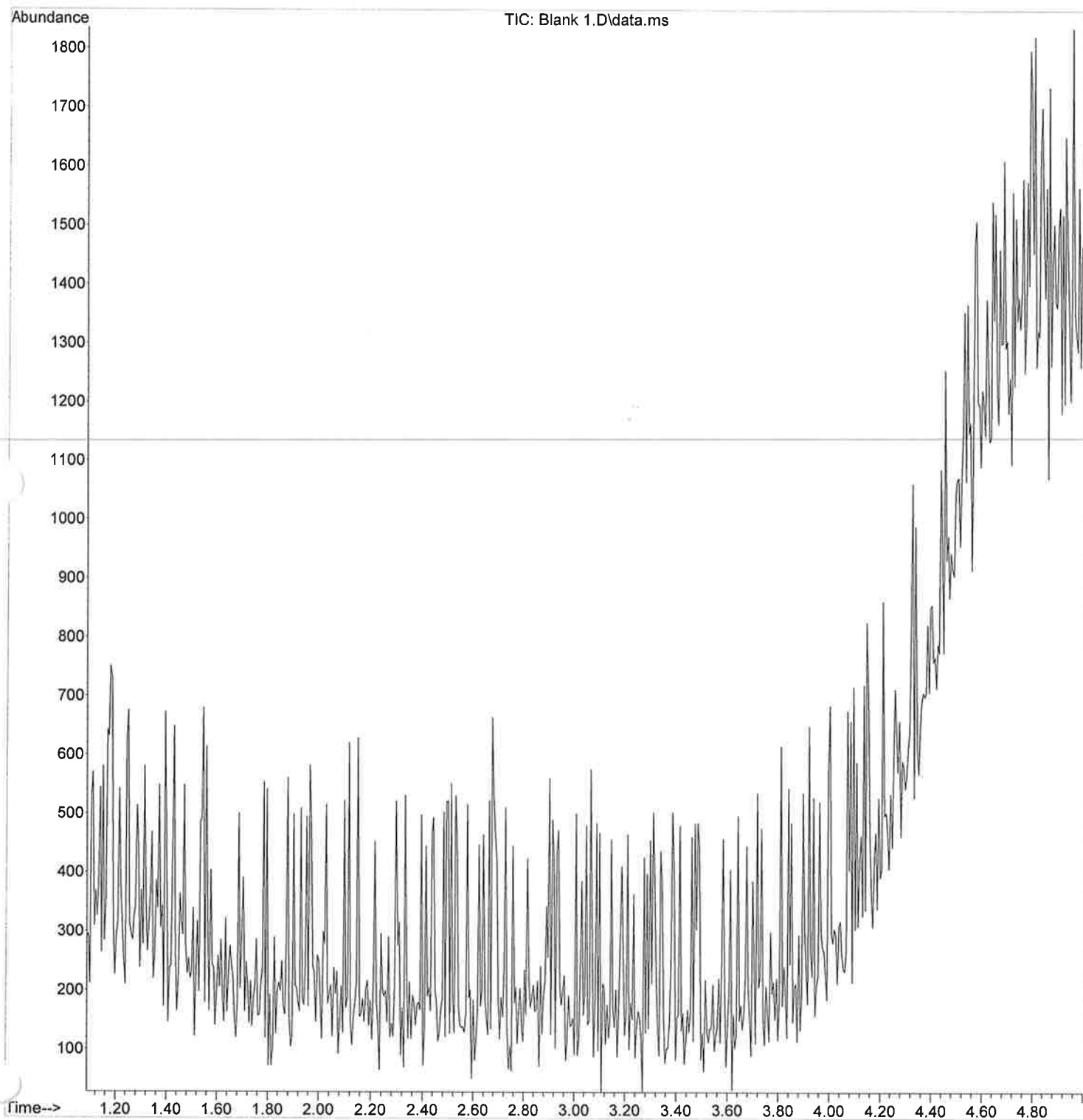
V. Carryover:

Gas Chromatography can suffer from carryover, where the analyte persists from one run to another. This phenomenon can be attributed to many causes, such as, overloading the inlet port with sample, certain samples adhering to the column, having too short of a run method that does not allow for all the analyte to elude off the column, and other reasons. This carryover could have the unintentional consequence falsely elevating the quantitation results. Good laboratory practice of regular maintenance, sample blanks, proper sample preparation, and wash methods can eliminate carryover. We need to understand at what concentrations THC carryover is possible. Understanding these concentrations will aid us in developing a method which is not plagued by this issue.

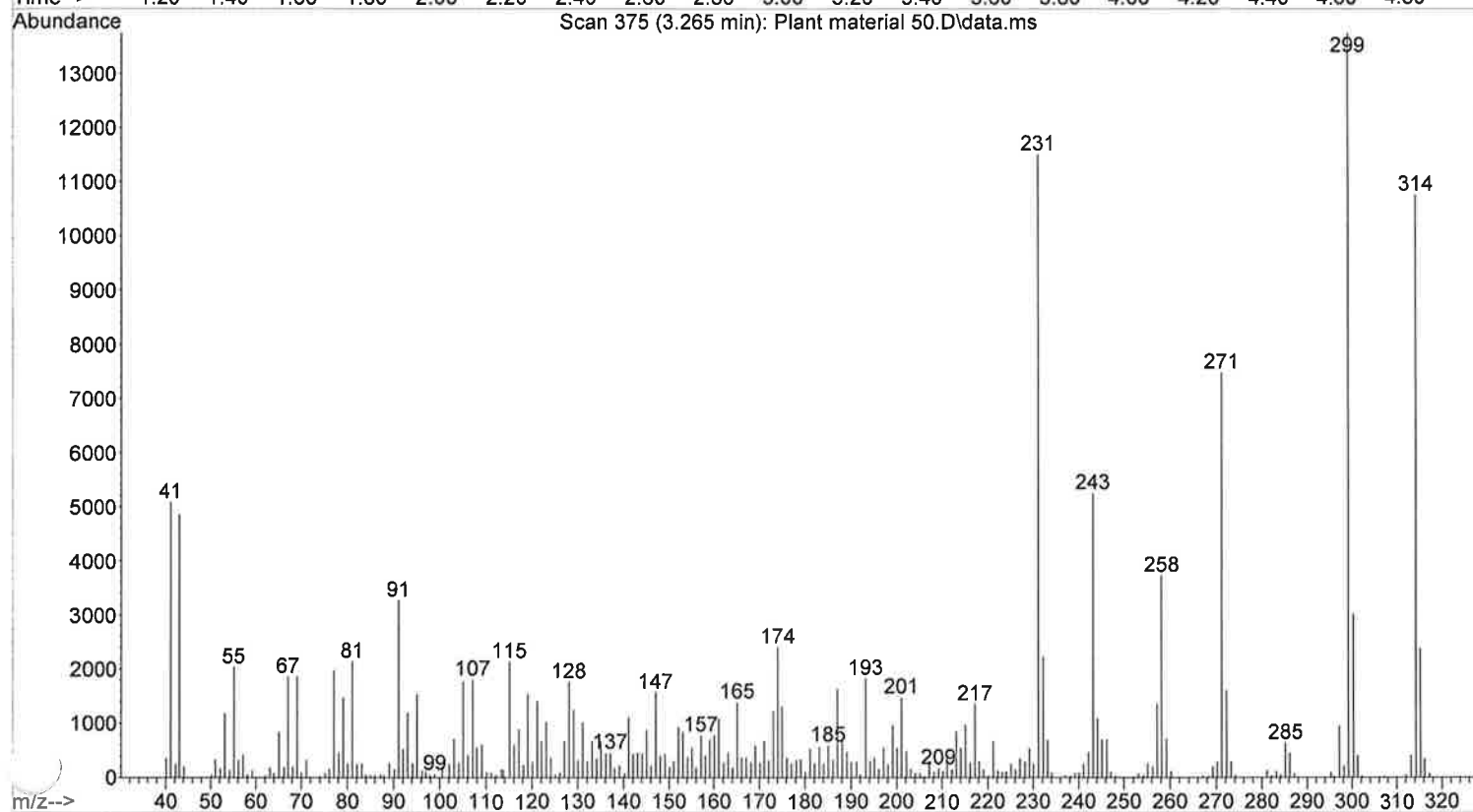
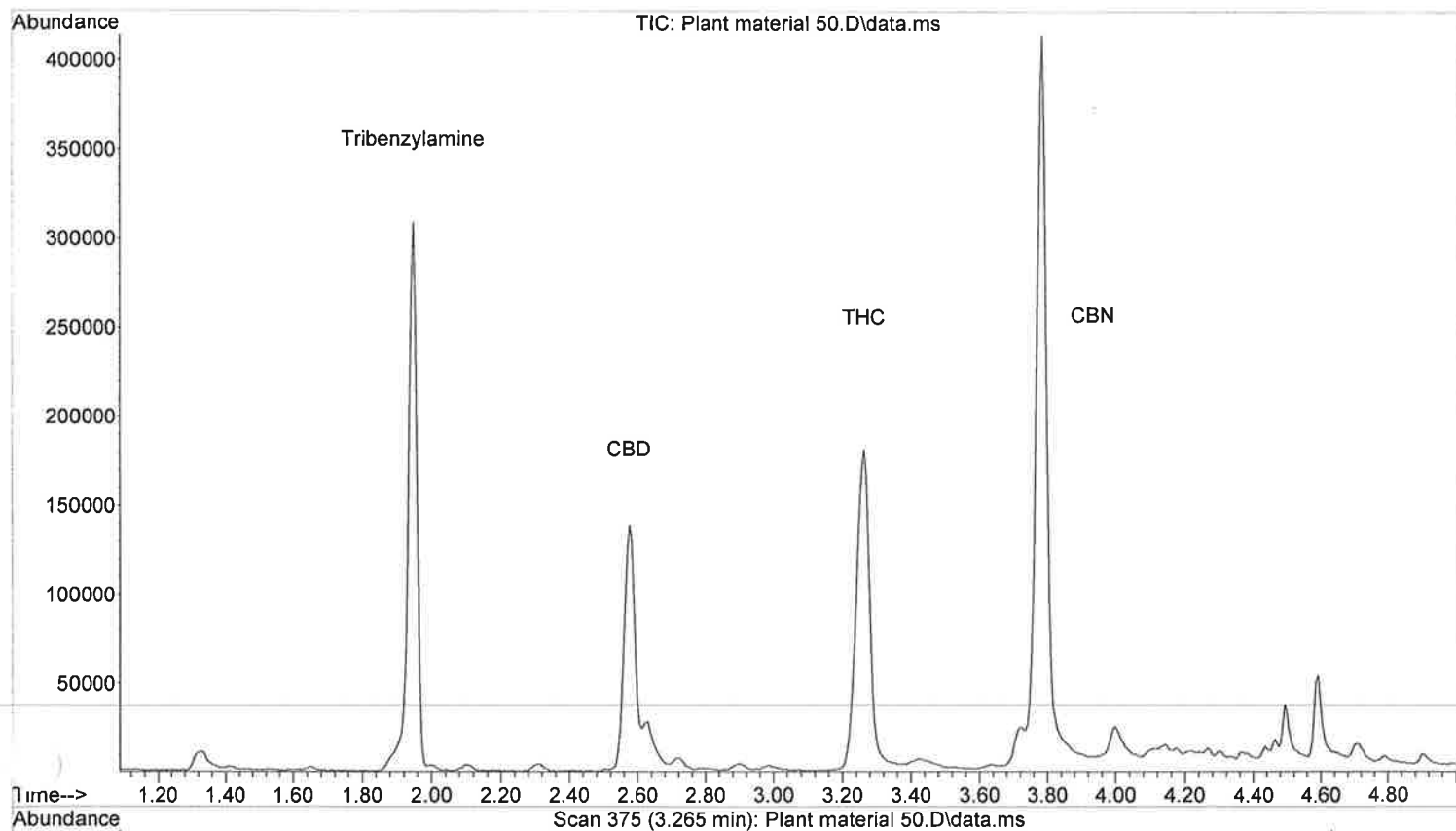
Between 3/8/2019 and 3/13/2019 a carry-over study was conducted. Plant material samples containing Cannabidiol (CBD), Δ^9 -Tetrahydrocannabinol (THC), and Cannabinol (CBN) were extracted into 2 mL of 150 $\mu\text{g/mL}$ Tribenzylamine (internal standard) in methanol. Methanol method blanks were run after every plant material sample and examined for the presence of any cannabinoids. The amount of plant material extracted was gradually increased while the volume of extraction solvent was kept the same, thusly increasing the expected concentrations of cannabinoids in one sample to the next. On 3/8/2019 a series of 50, 100, 125, 150, 175, 200, 300, and 400 mg of plant material were extracted and run. No cannabinoid peaks were observed in the blanks following any of those samples. On 3/13/2019 a series of 400, 500, 750, and 1000 mg of plant material samples were extracted and run. While no cannabinoid peaks were detected in the blanks following these samples, ions indicating the possible presence of THC and CBN were observed.

This study was limited to one batch of plant material and the amount of cannabinoids present can absolutely vary from batch to batch of plant material. However, this study did show that even extracting ten times the amount of plant material into the same volume of solvent did not necessarily lead to carry over. Analyst using this method to quantitate THC in plant material will have to exercise good laboratory practice. It will be imperative to run blanks and verify that those blanks are free of cannabinoids. Changing injection syringes, inlet liners, septa, and gold seals as well as cleaning the mass spectrometer's source all become more critical in quantitative analysis more so than when performing qualitative analysis. However, with that in mind the extraction procedure used in this method should not by itself lead to carry-over issues.

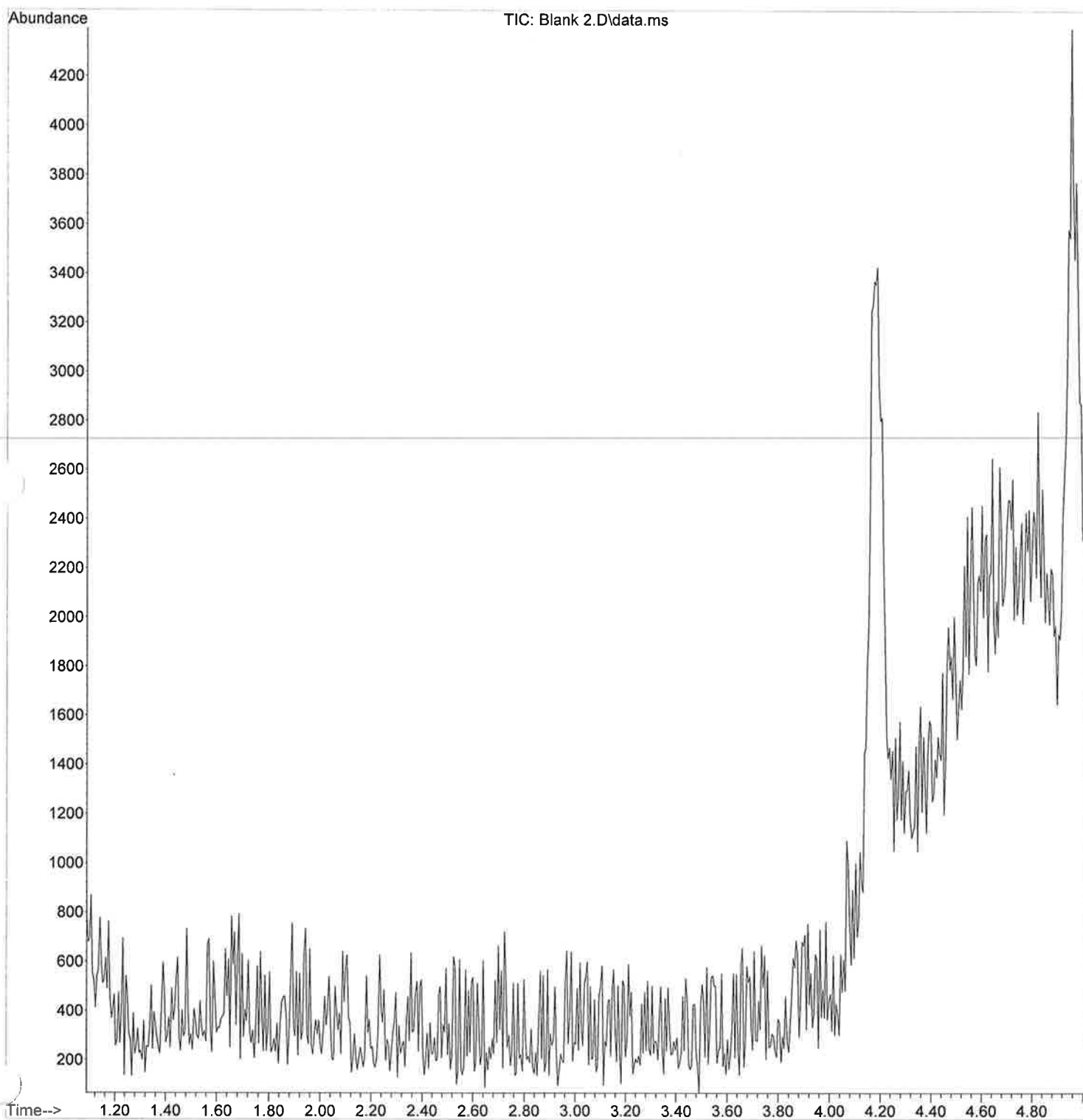
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Instrument : Gumbo
Sample Name: Blank
Misc Info : Methanol
Vial Number: 26



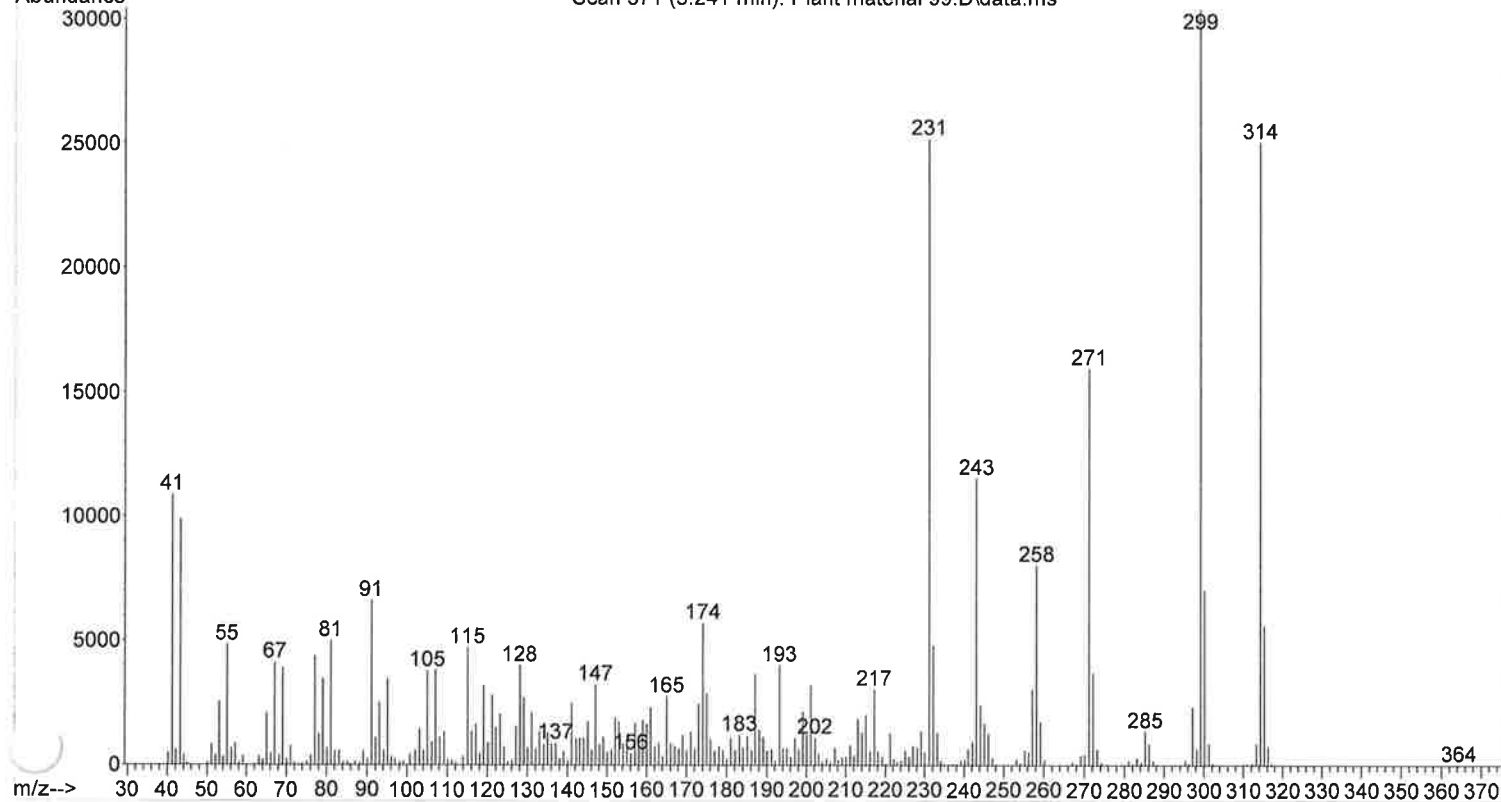
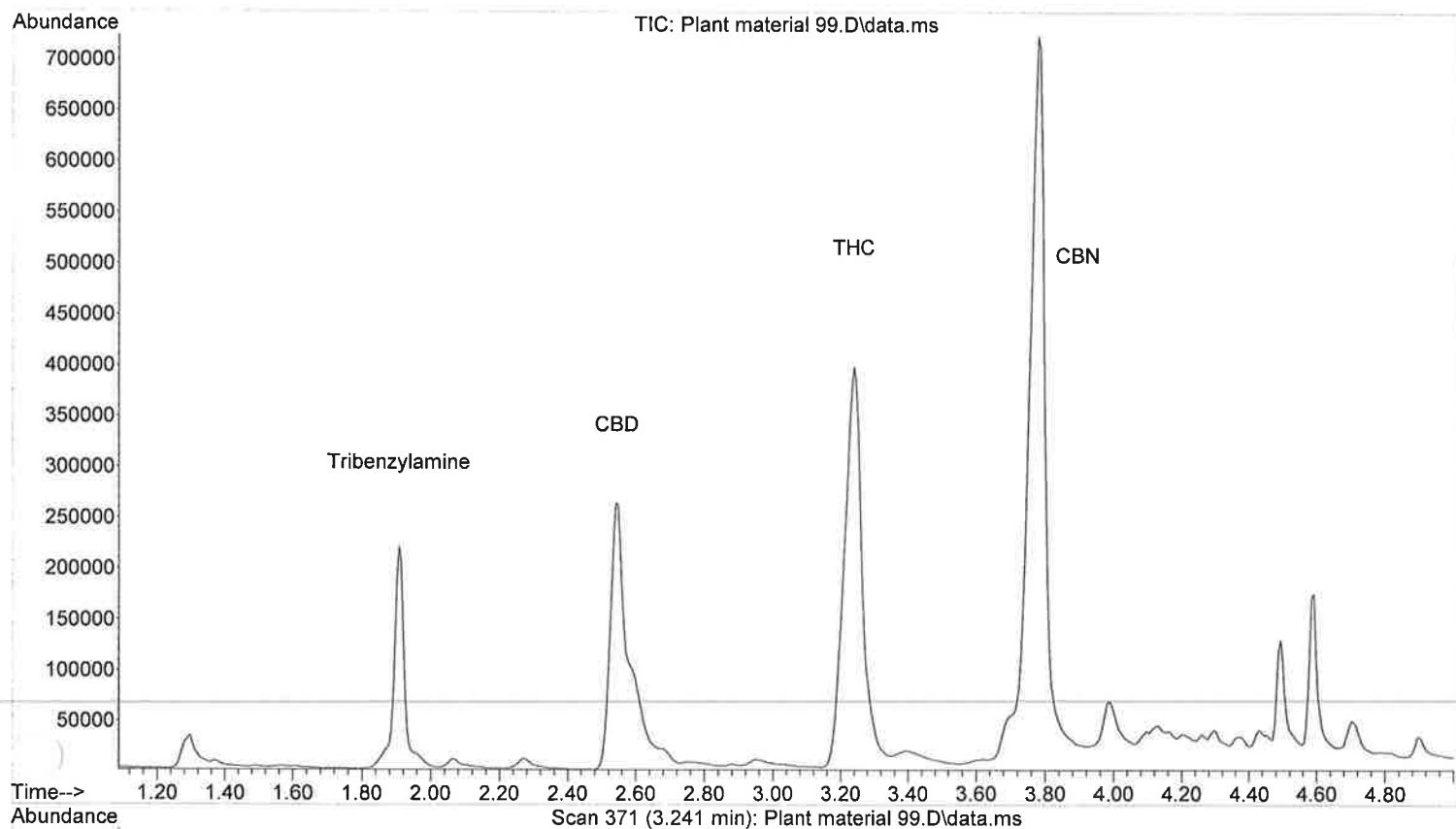
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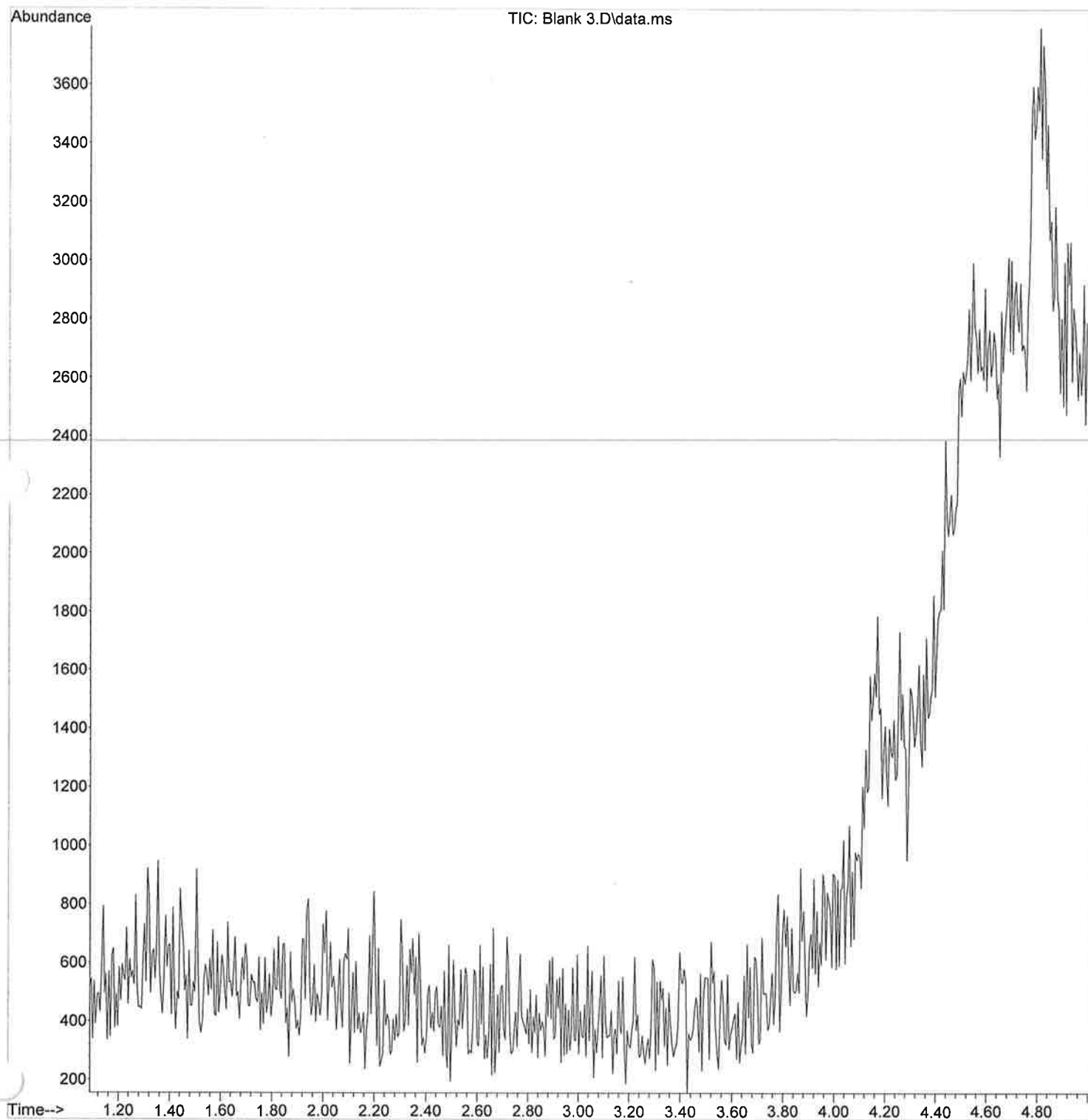
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Vial Number: 28



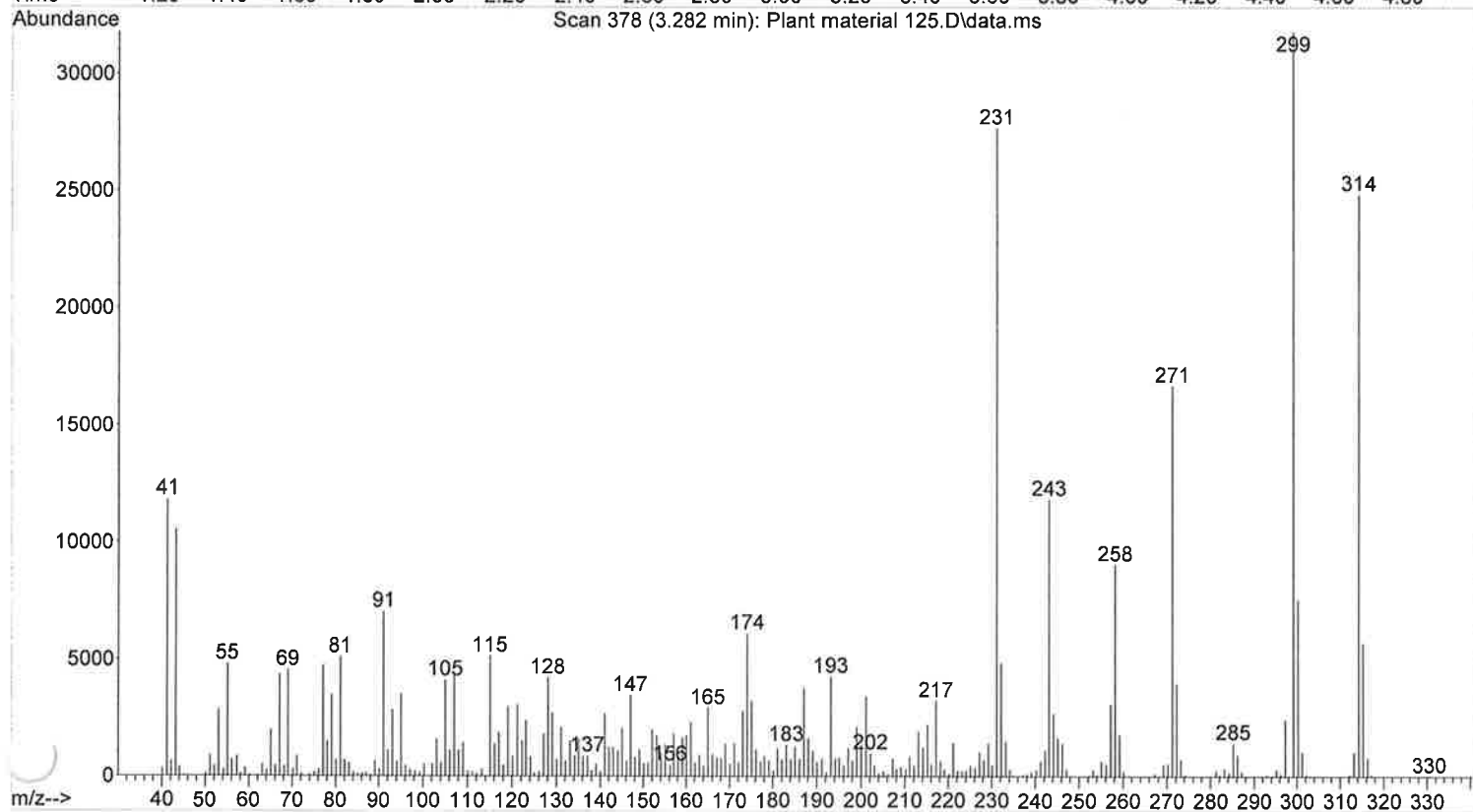
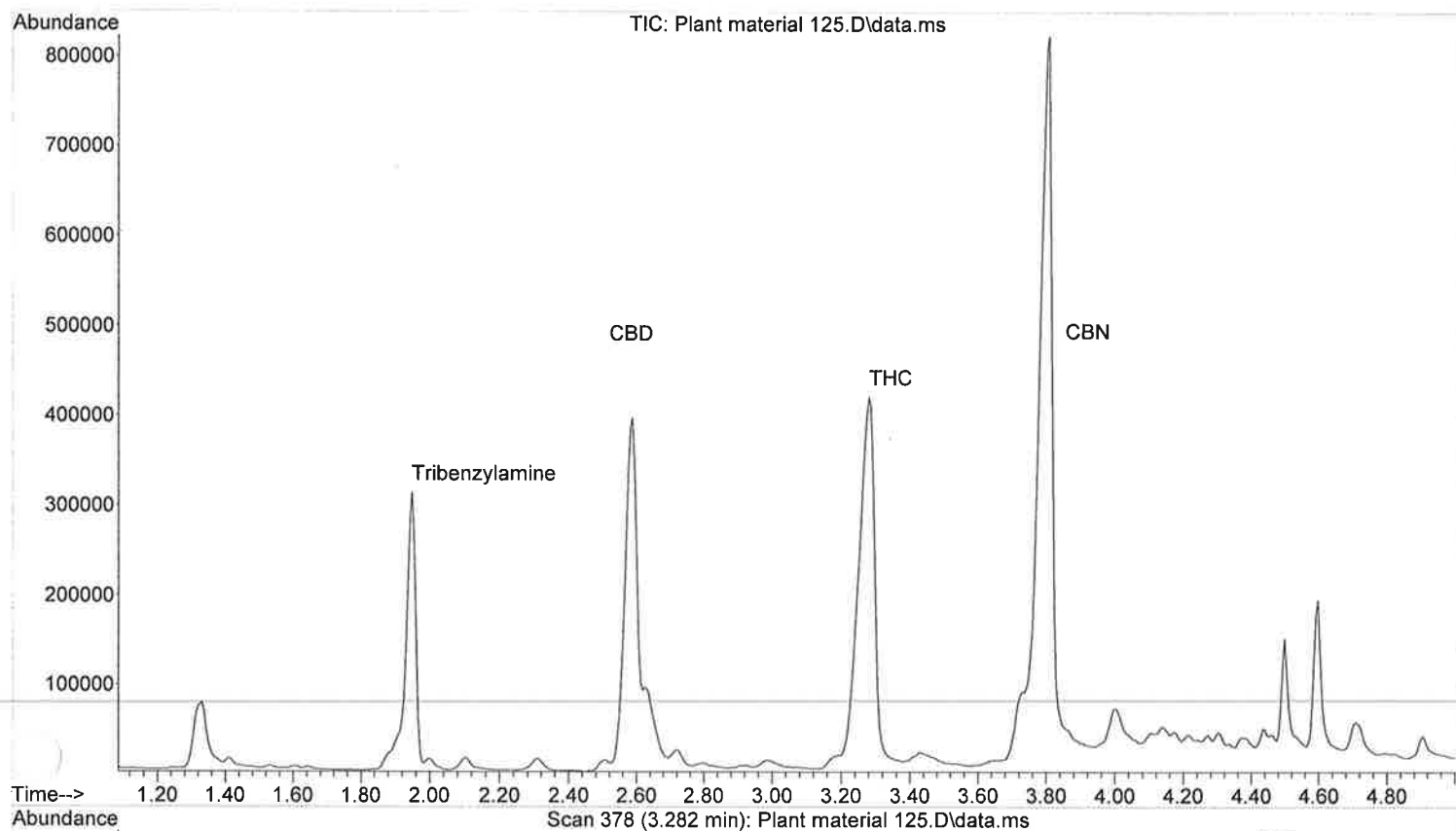
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Via : Number: 31



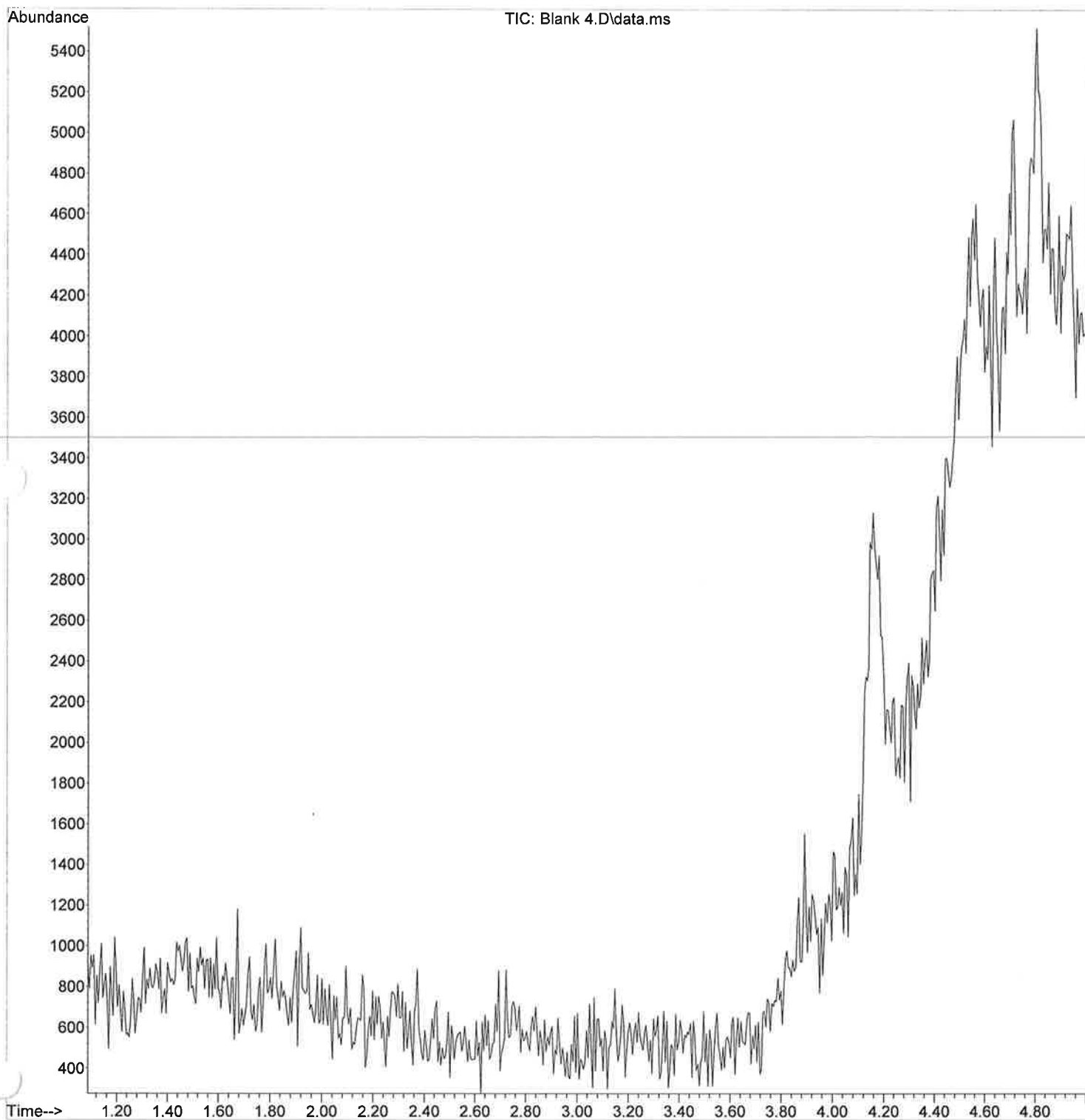
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Vial Number: 30



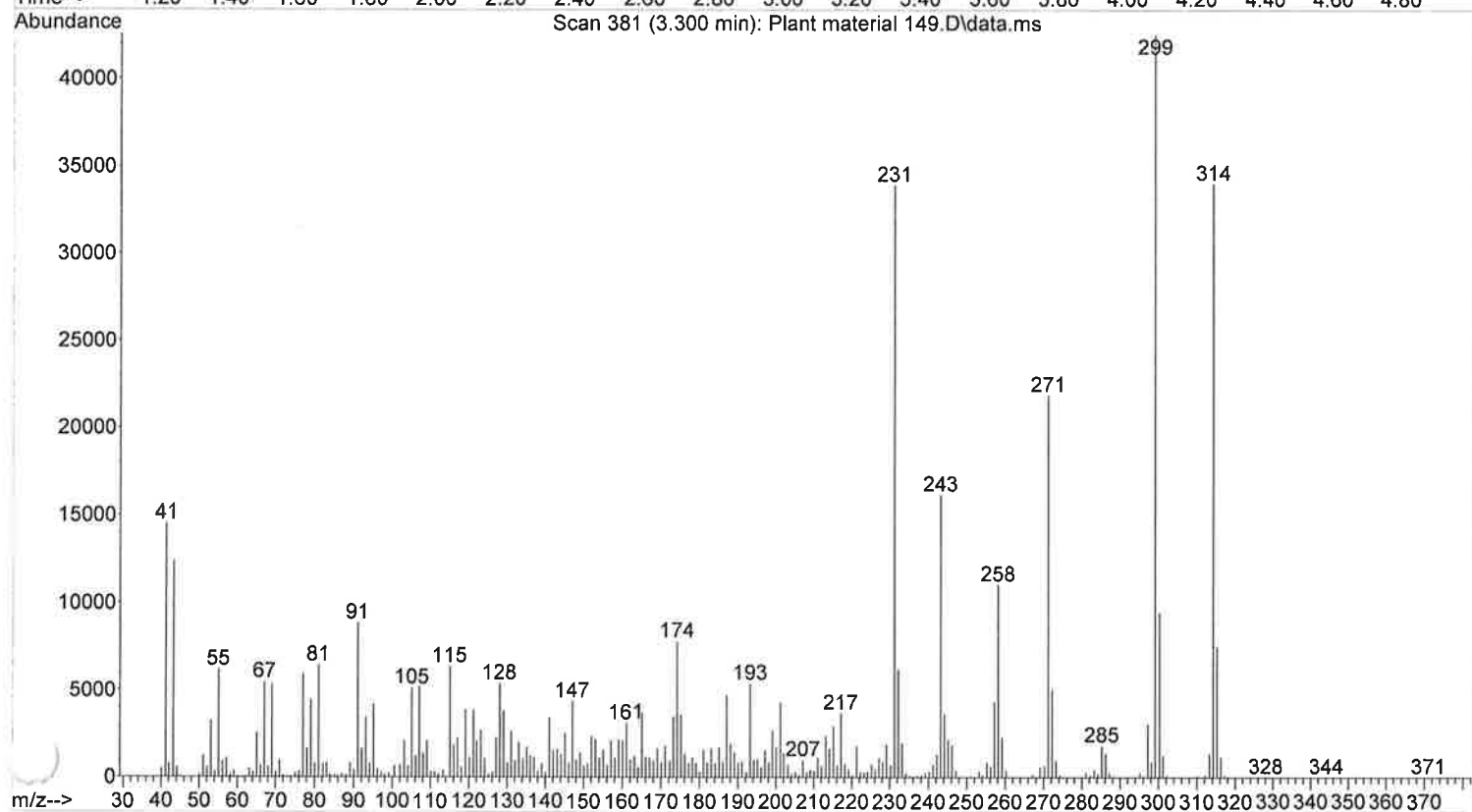
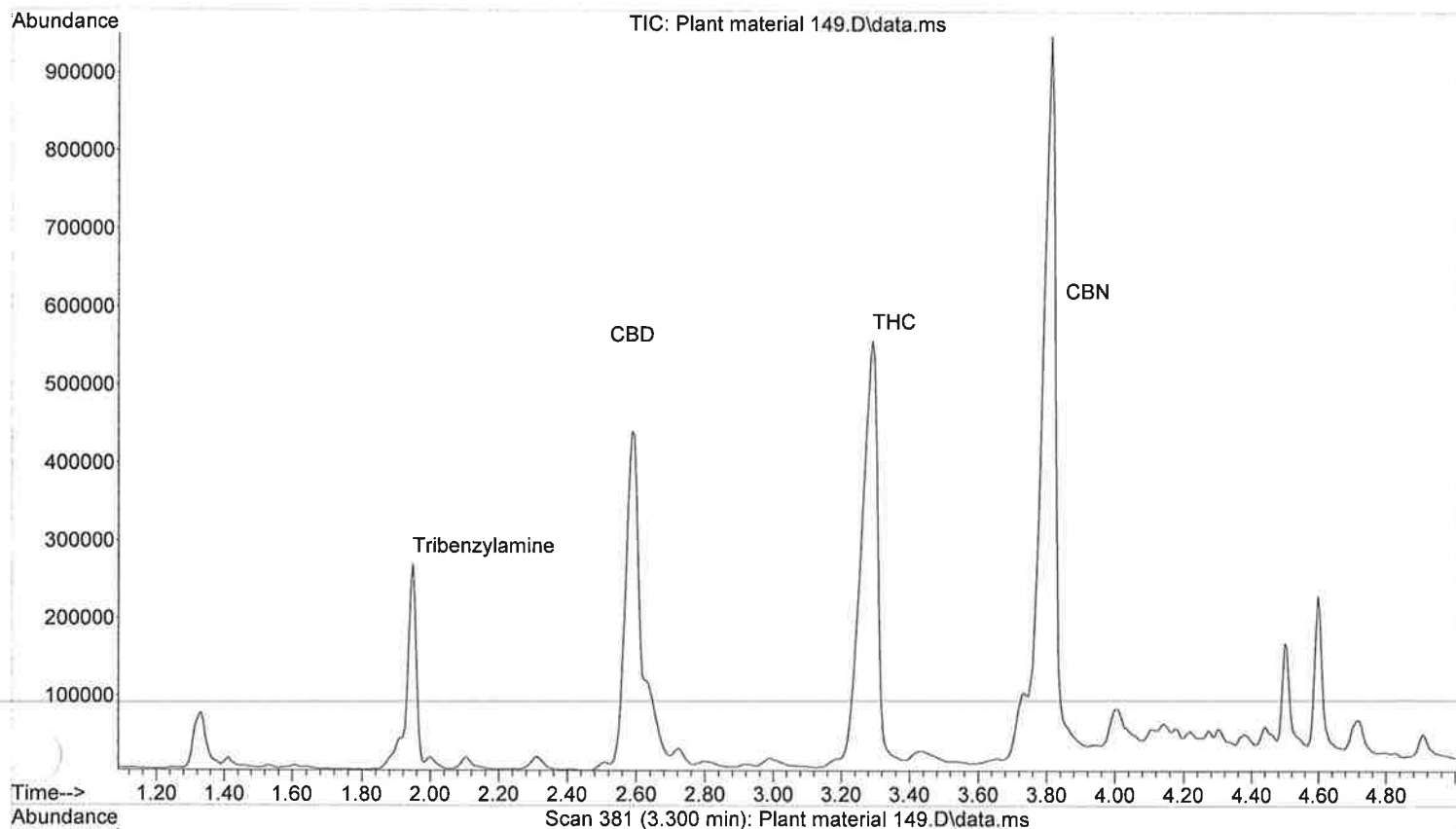
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Via :umber: 33



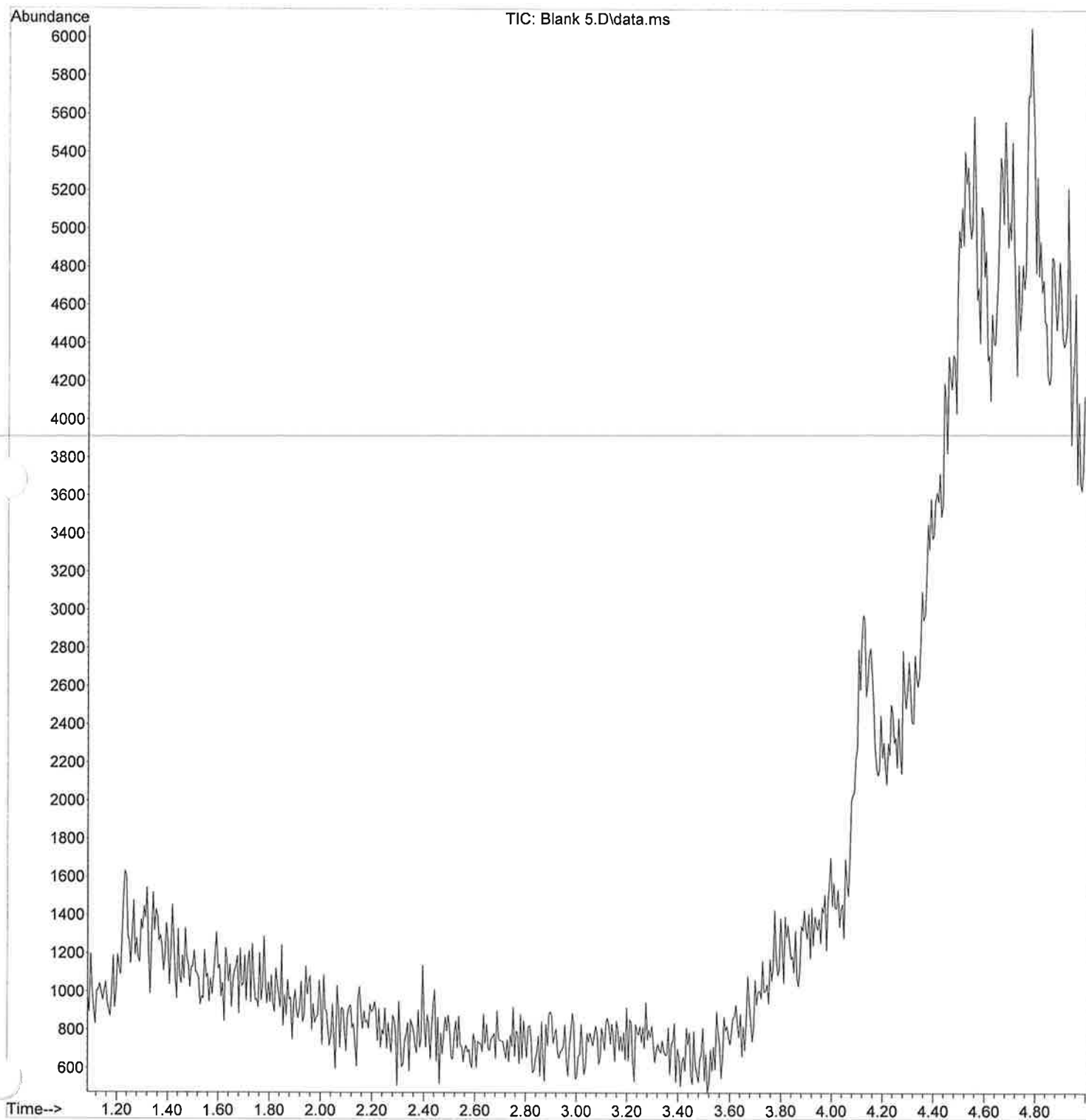
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Vial Number: 32



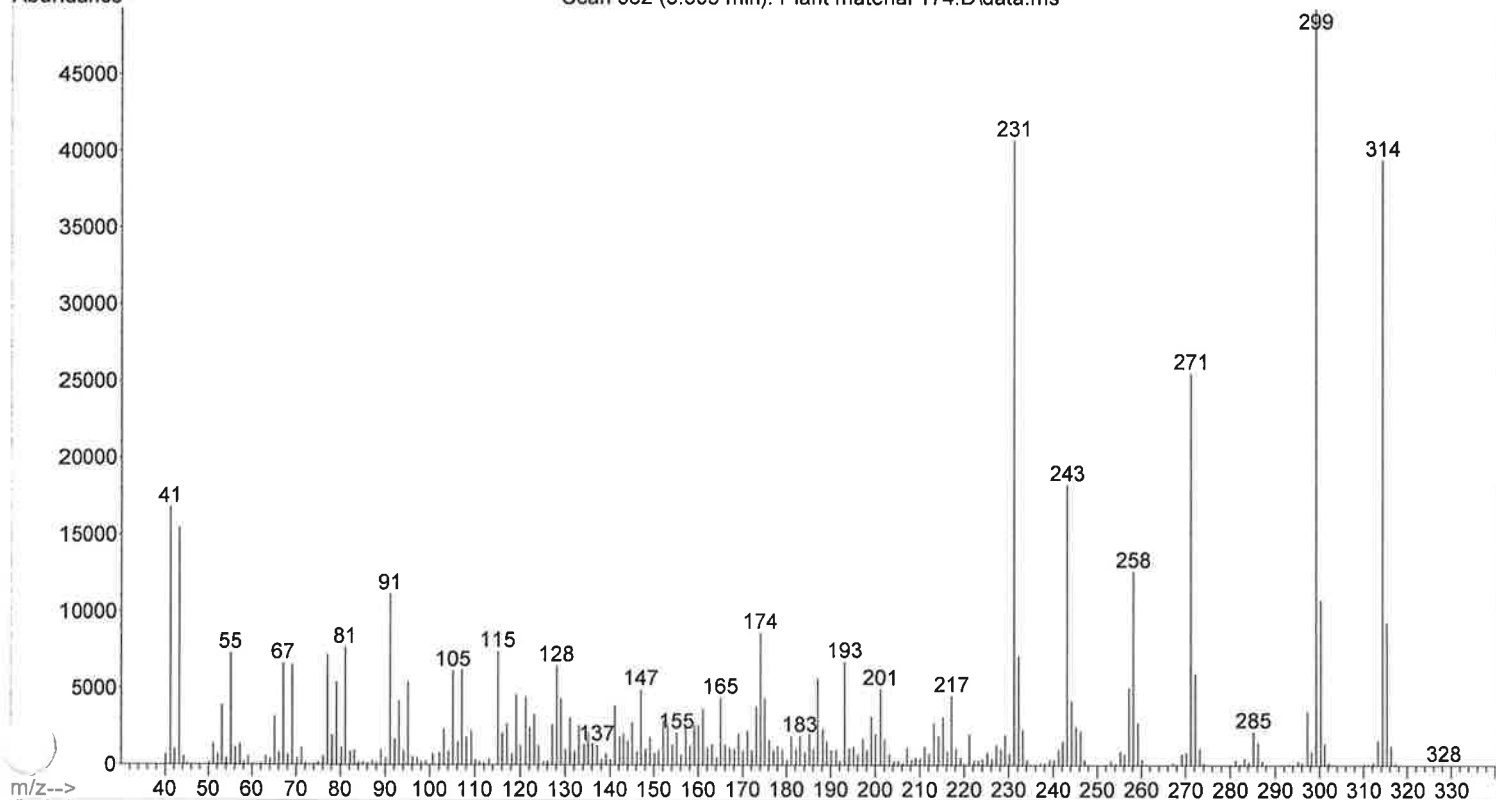
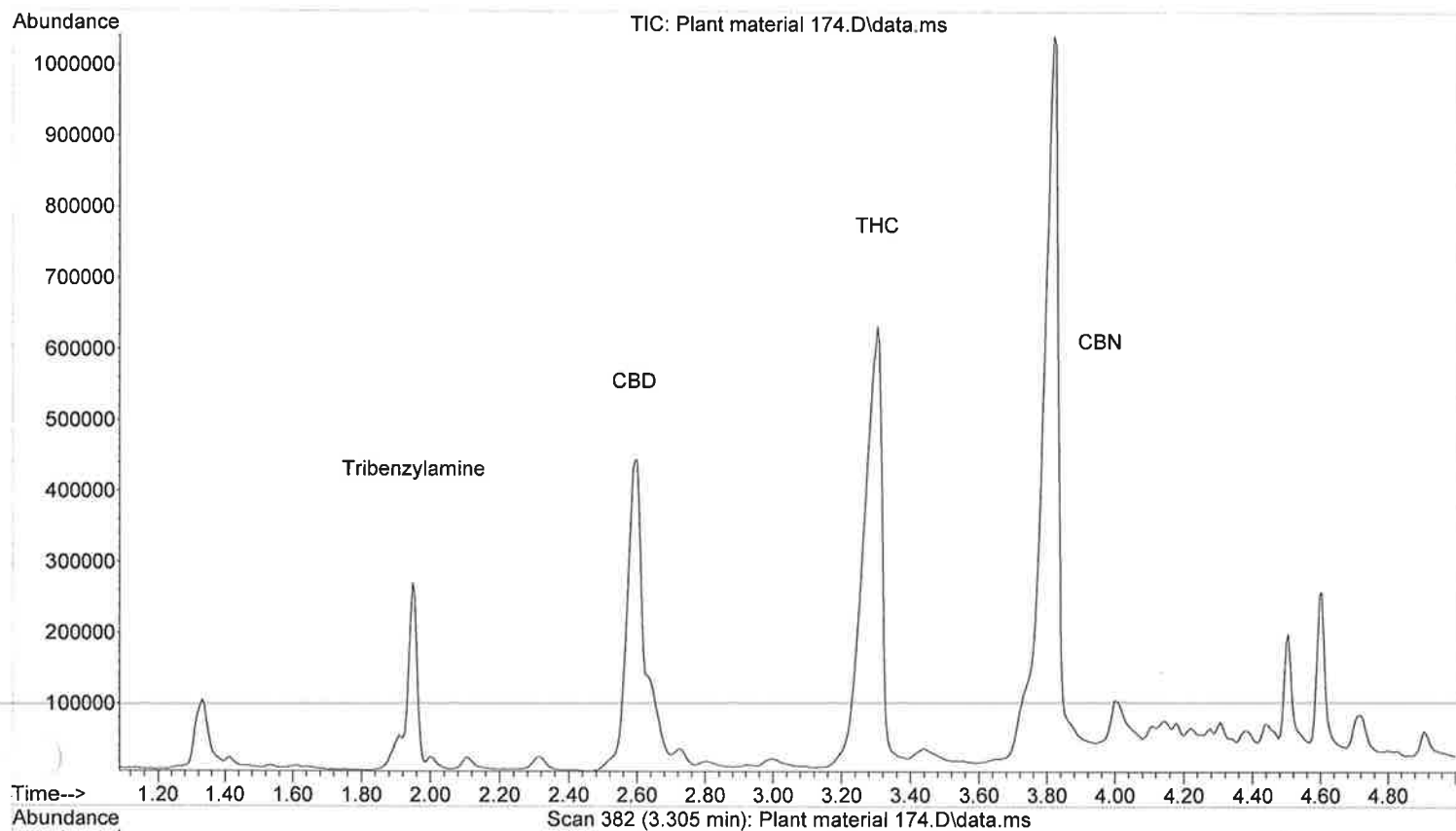
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Via : Number: 35



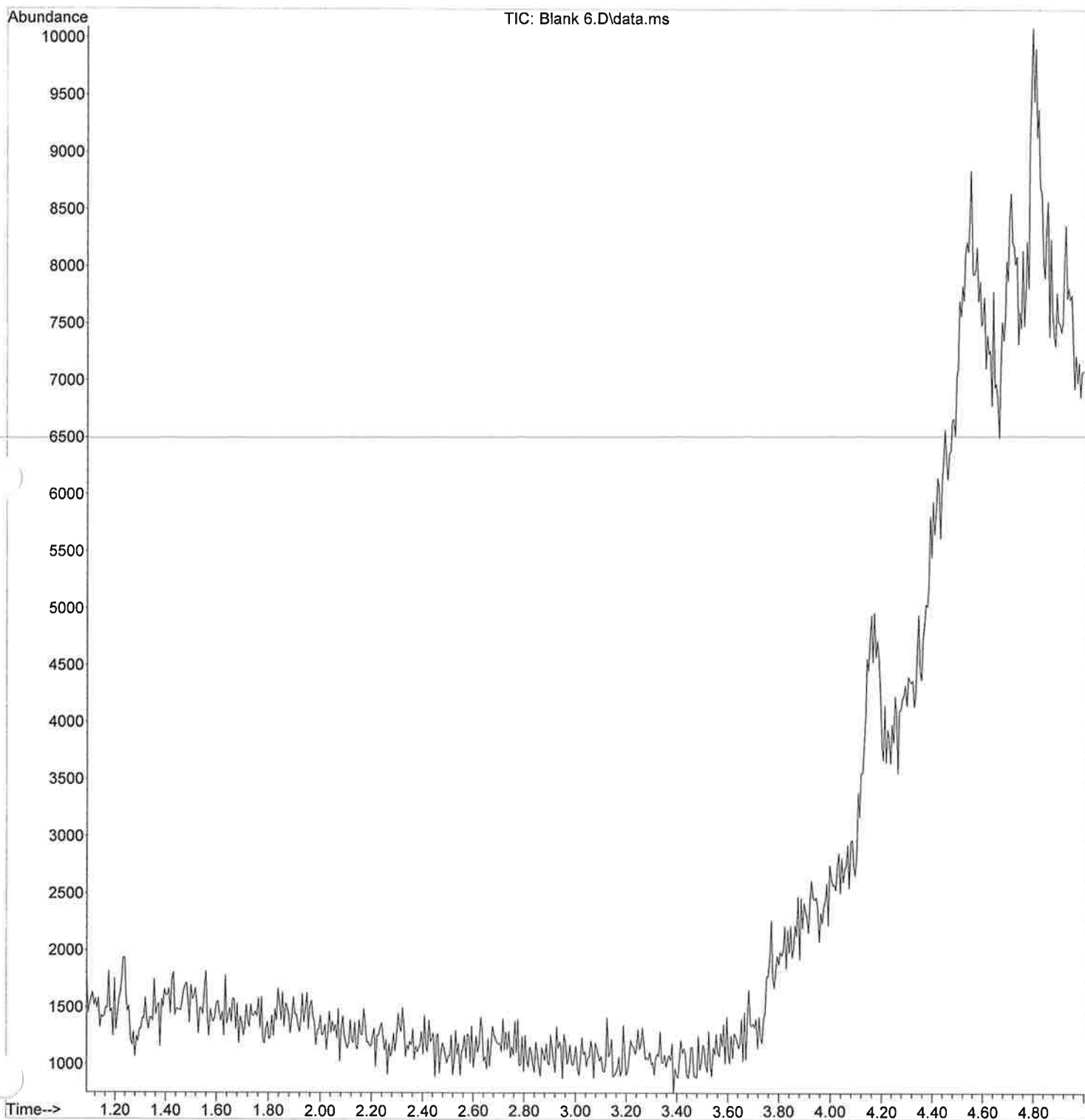
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Vial Number: 34



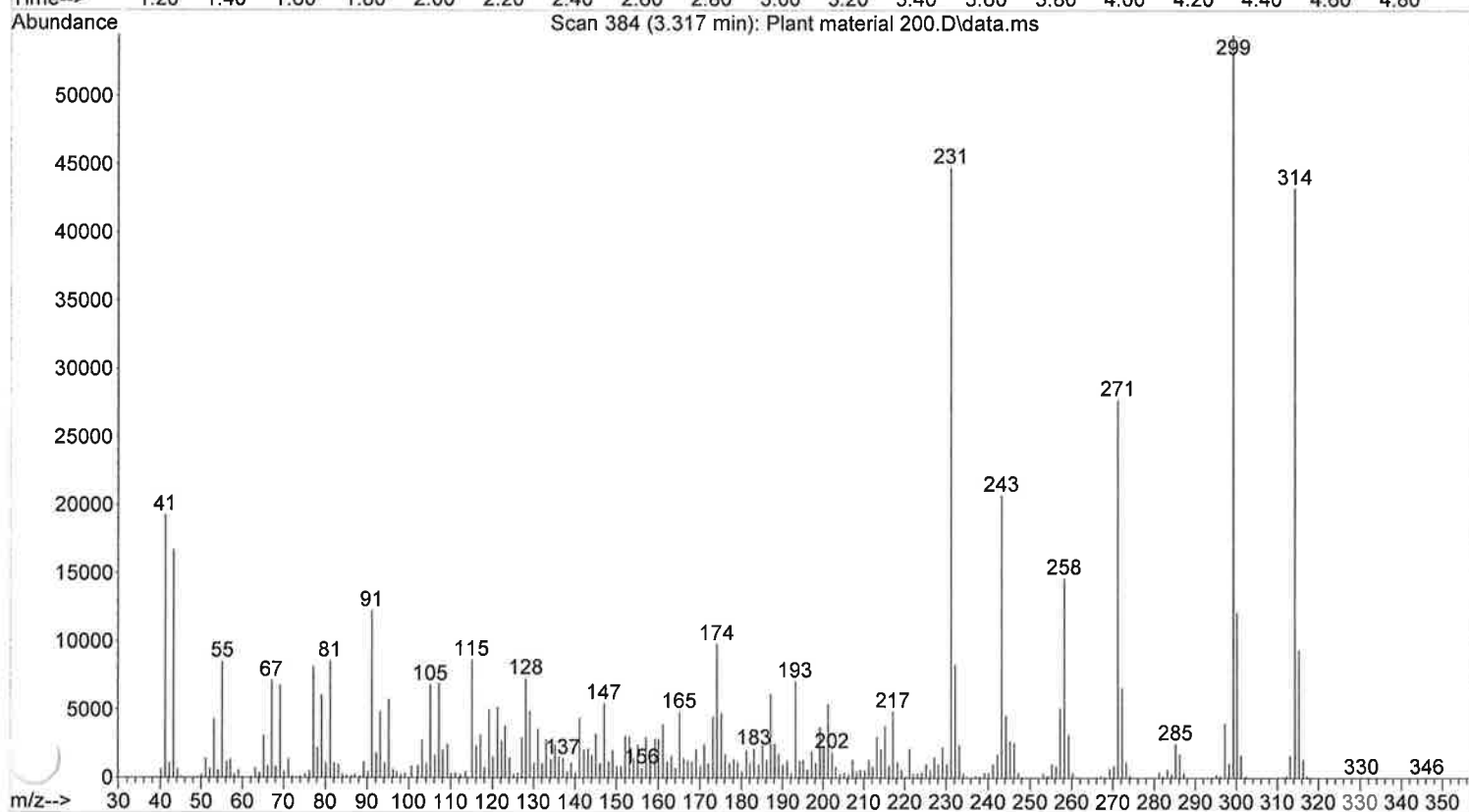
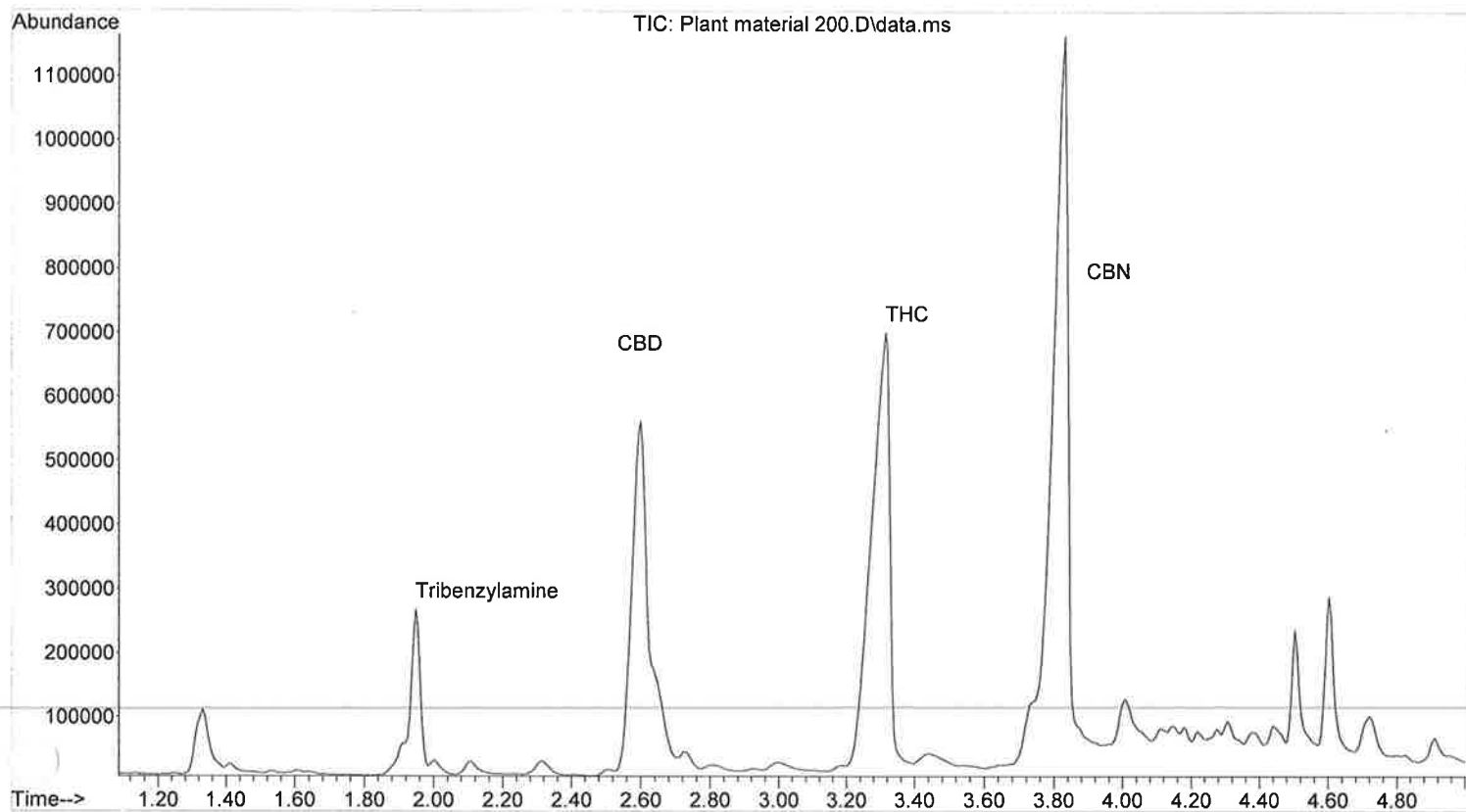
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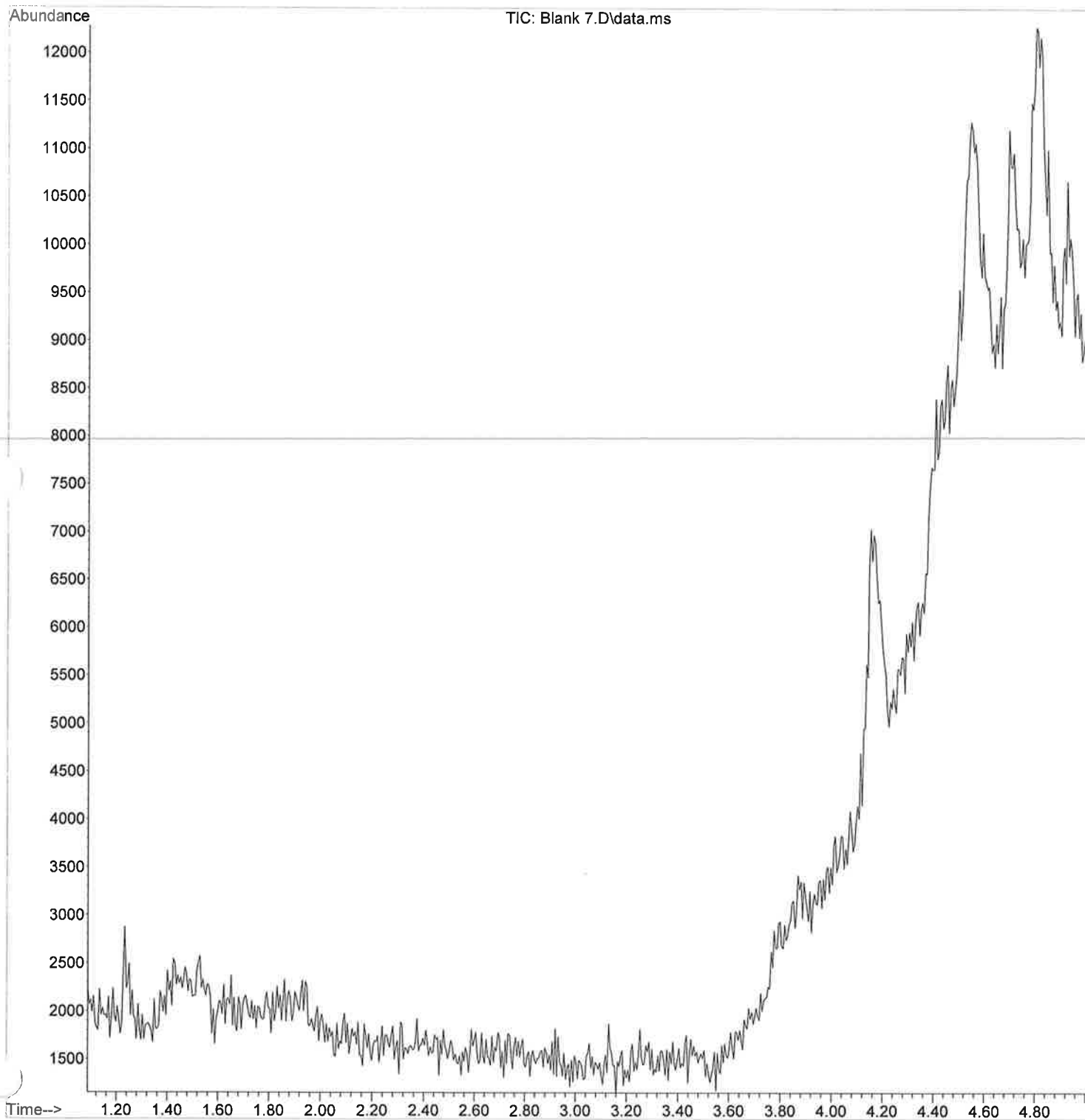
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Misc Info : Methanol
Vial Number: 36



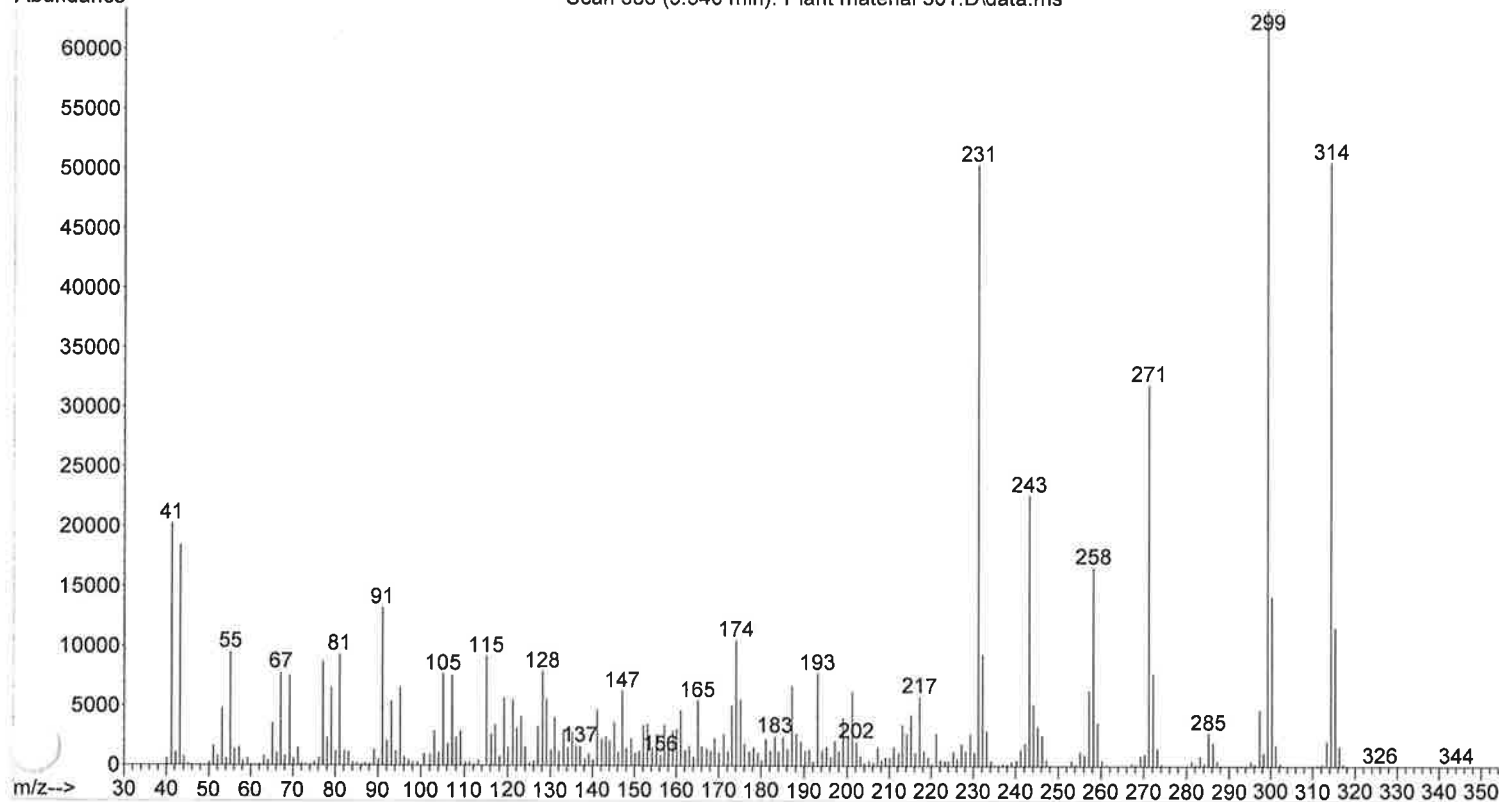
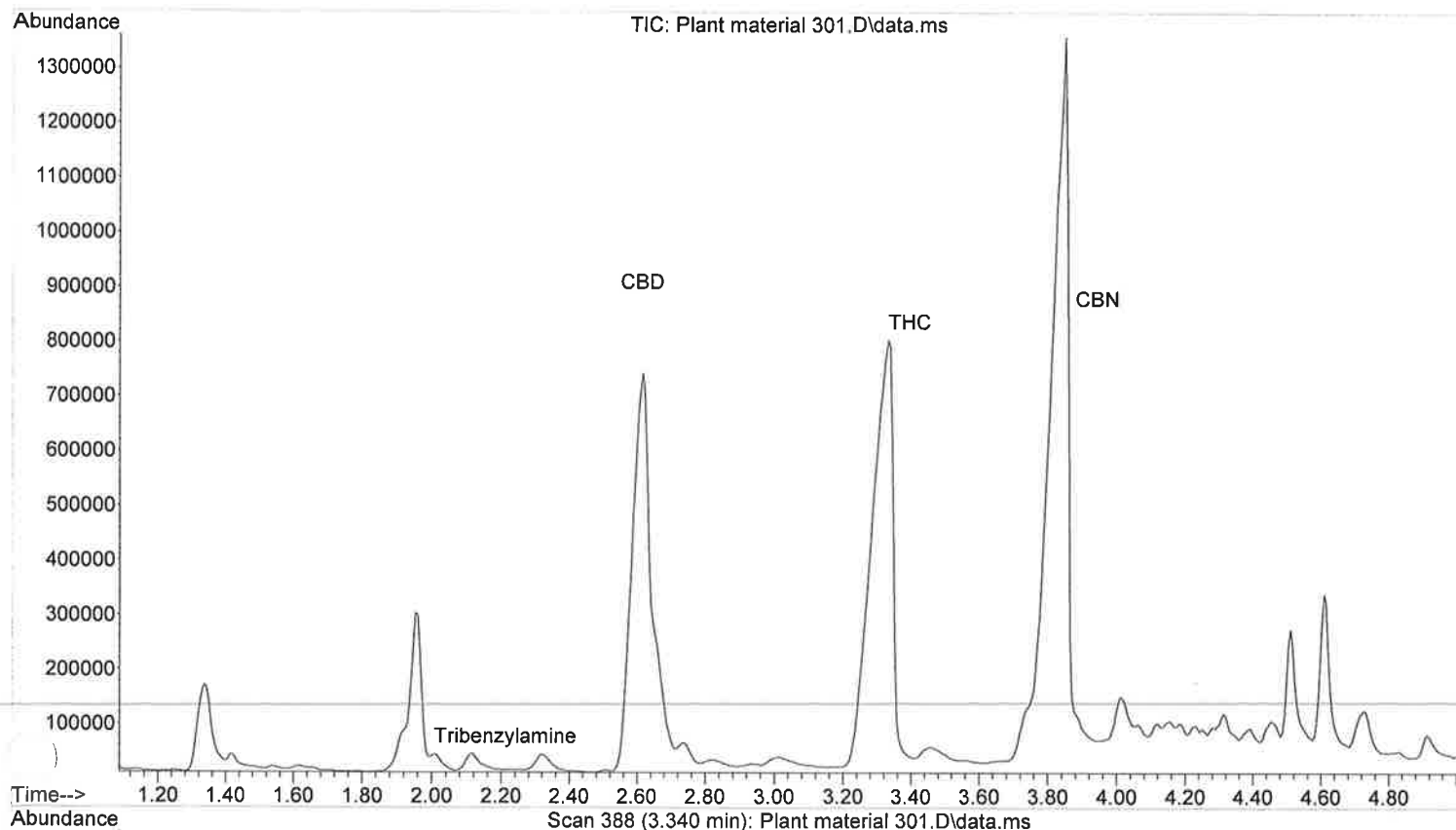
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Misc Info : Methanol
Vial Number: 39



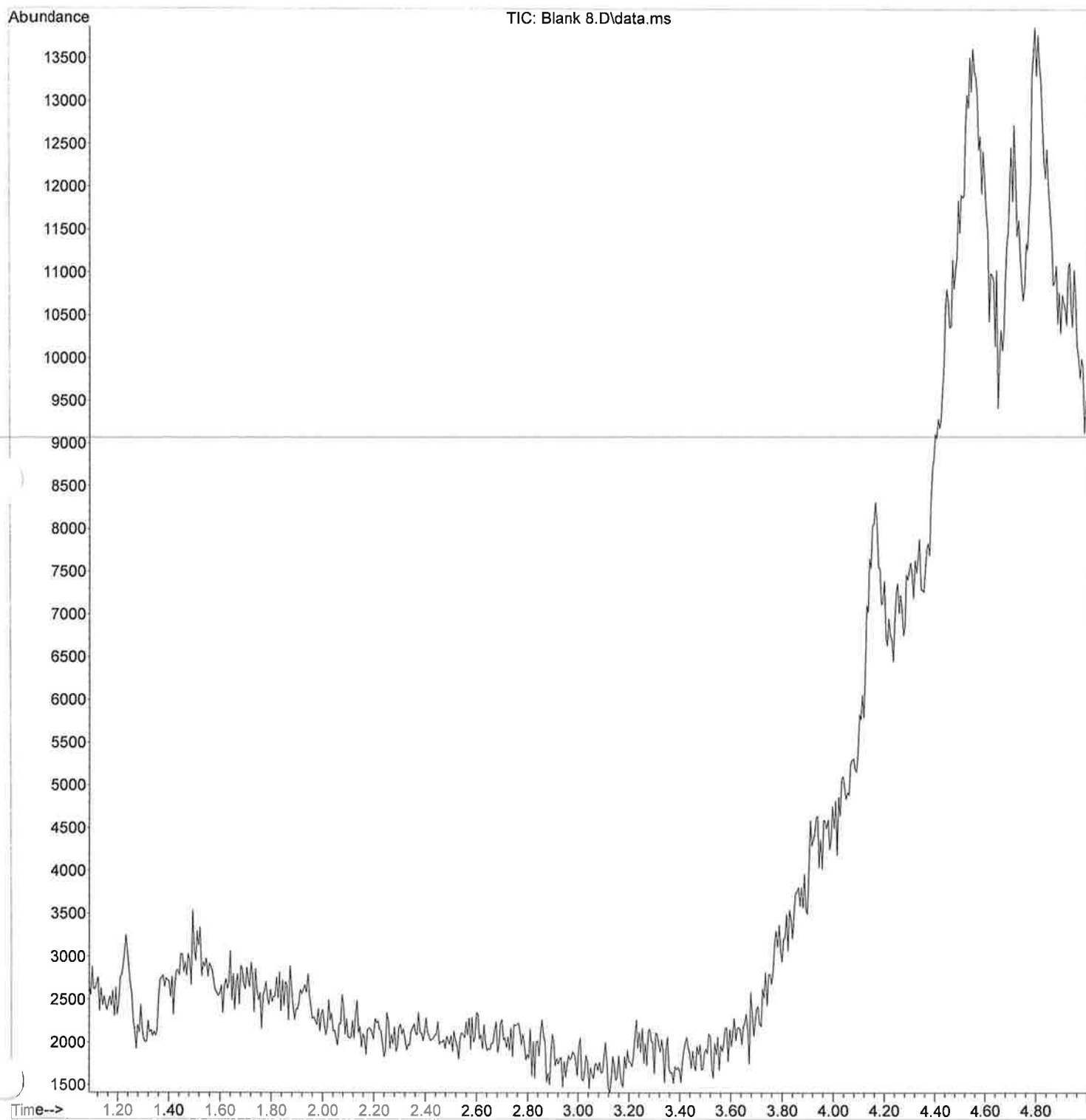
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Misc Info : Methanol
Vial Number: 38



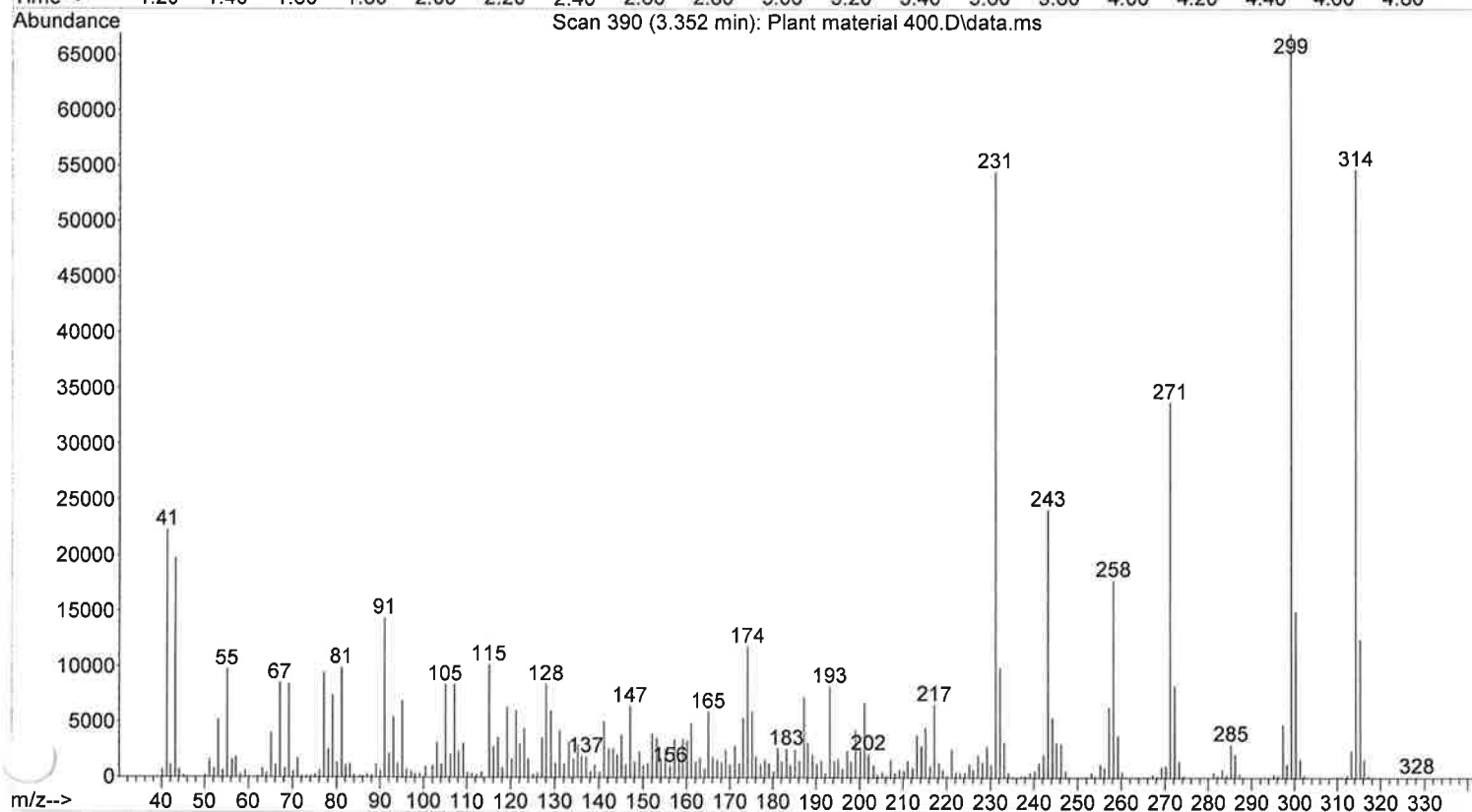
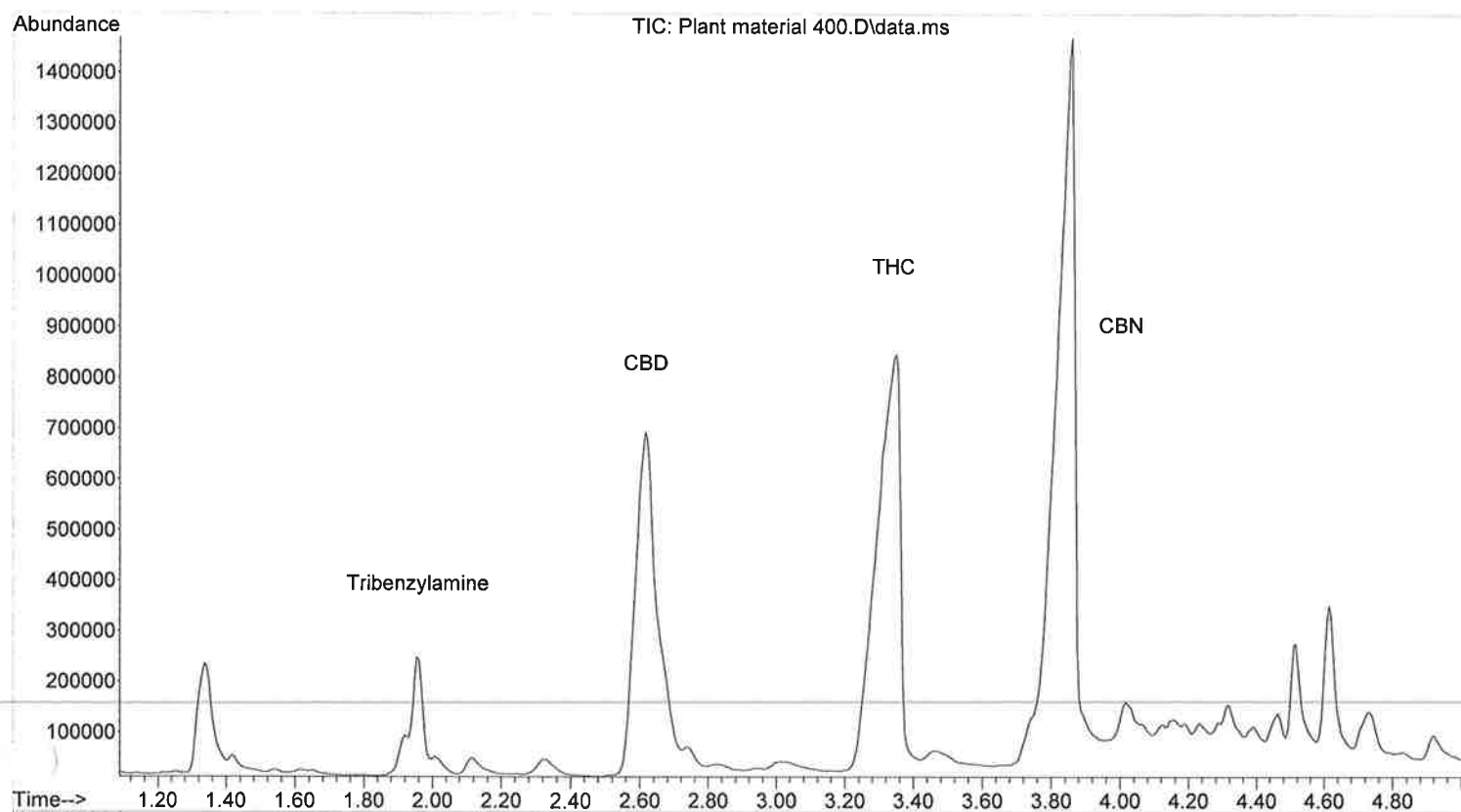
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Vial Number: 41



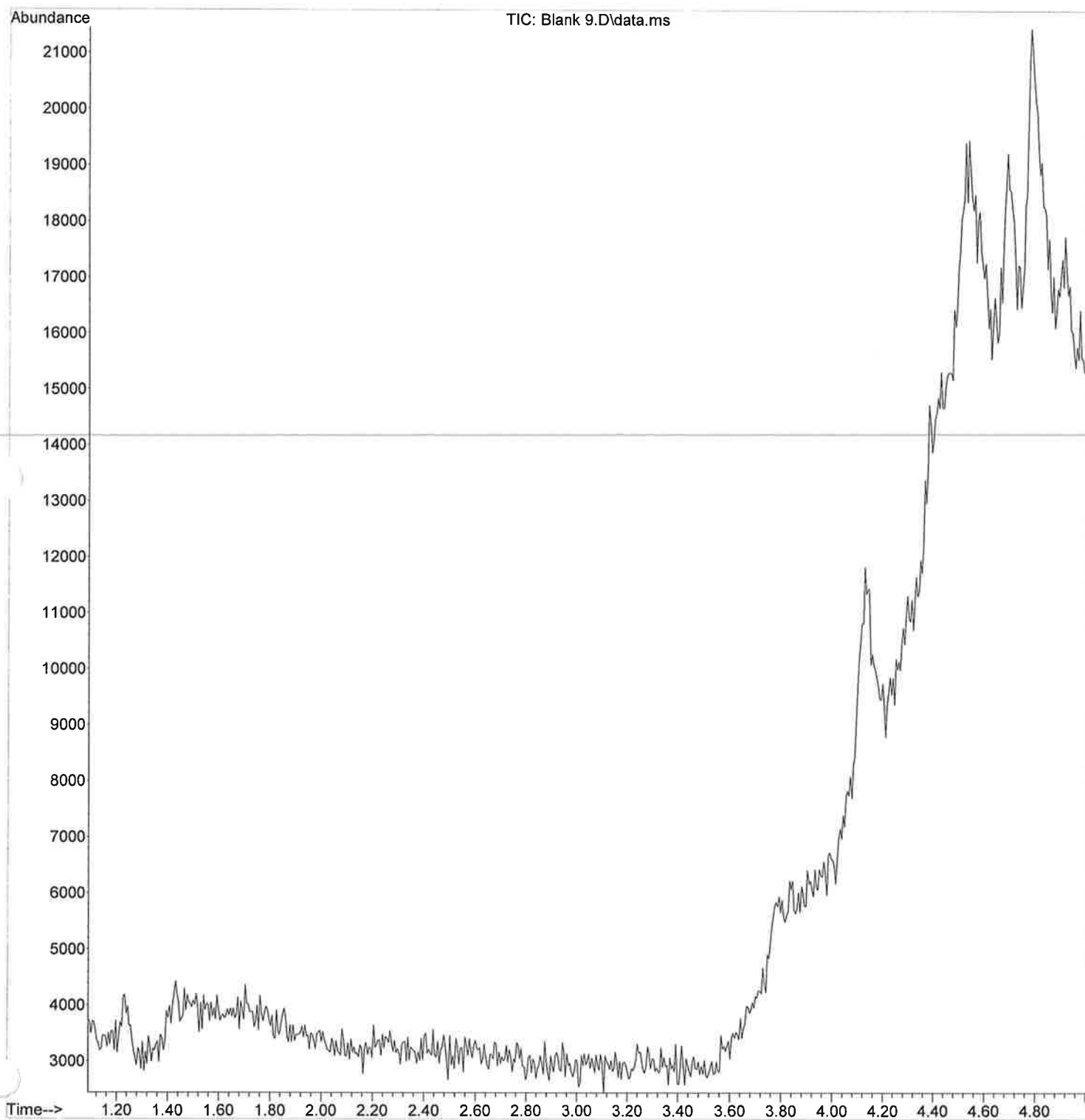
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Vial Number: 40



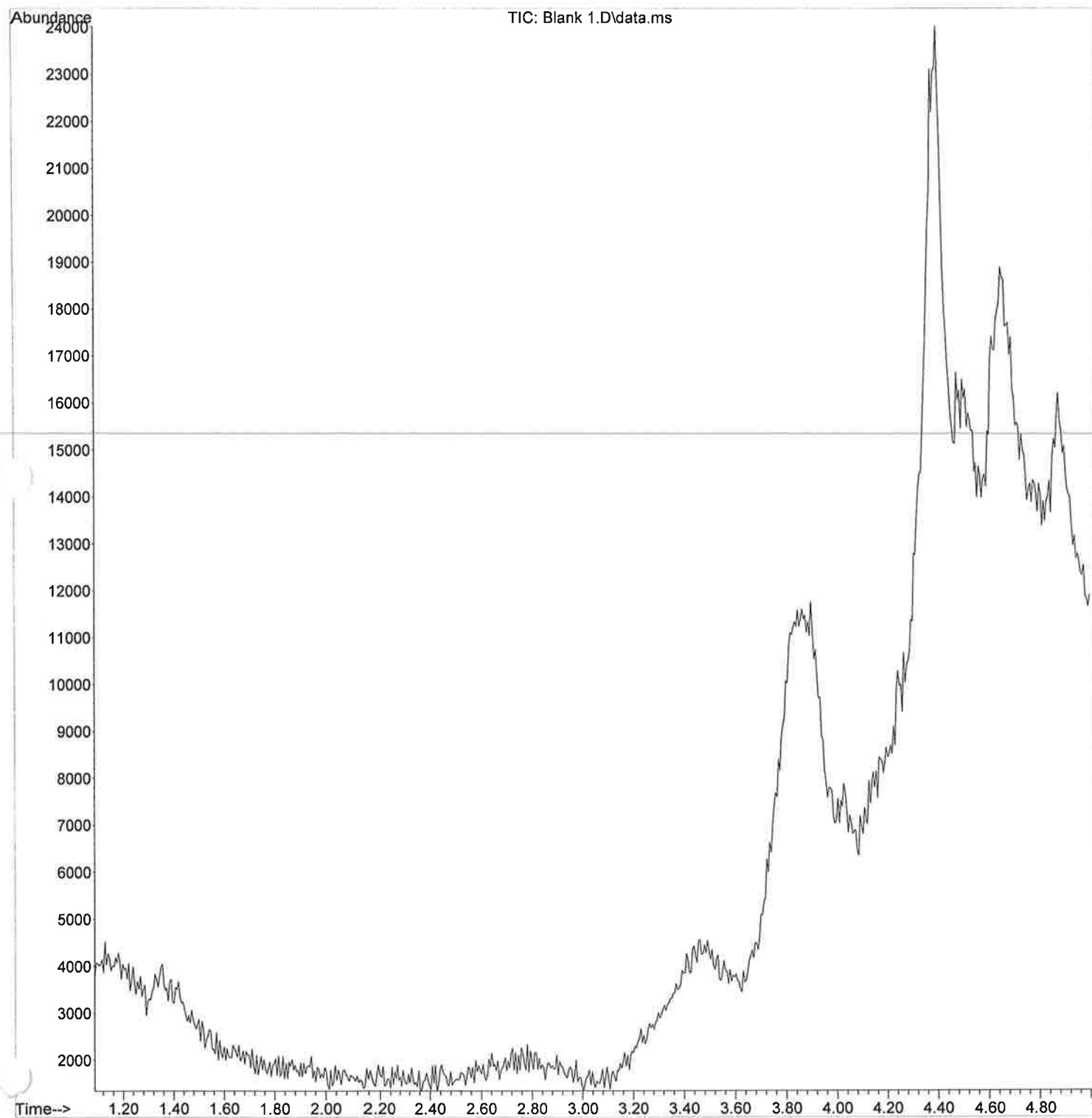
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Instrument : Gumbo
Sample Name: Plant material
Misc Info : Methanol
Vial Number: 43



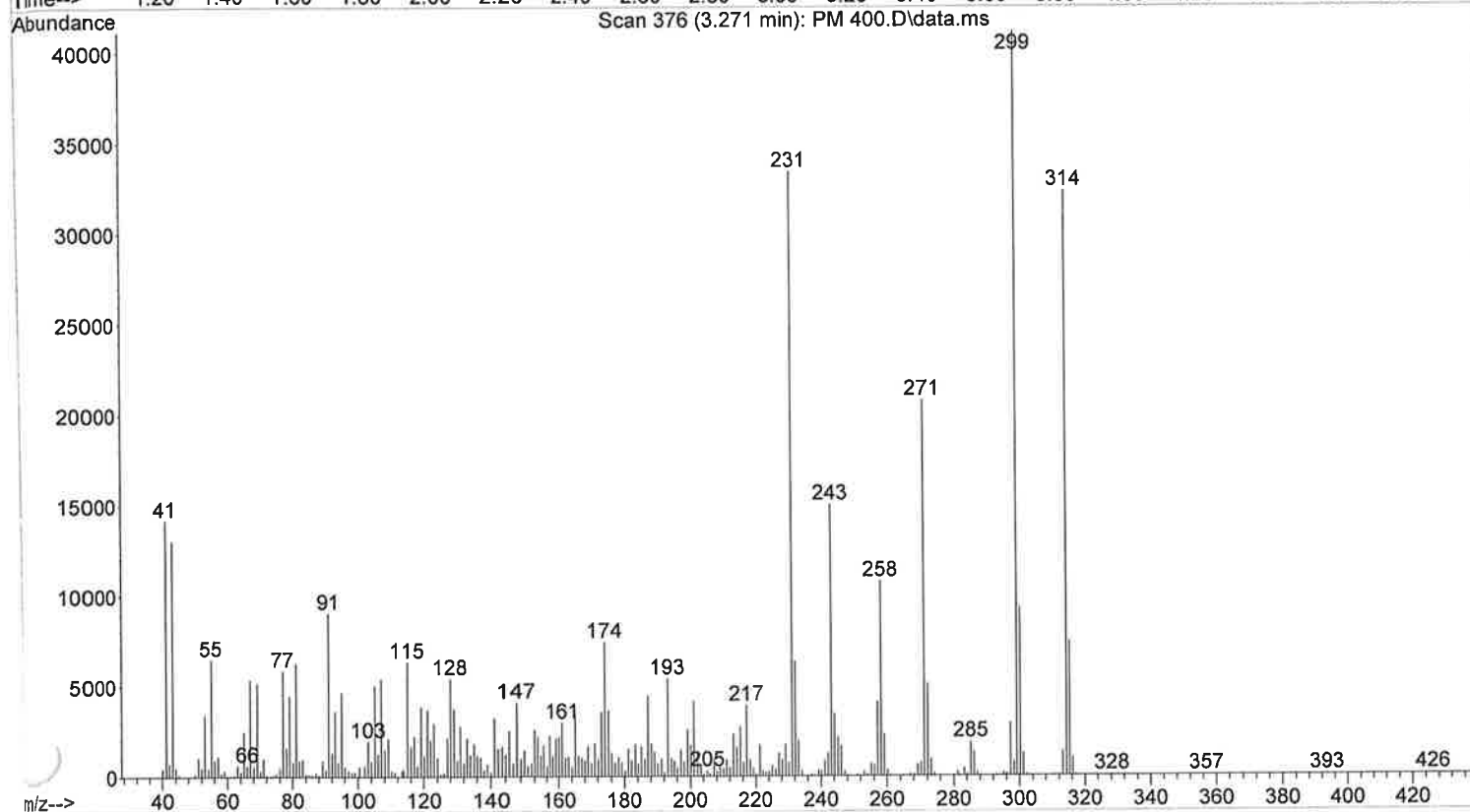
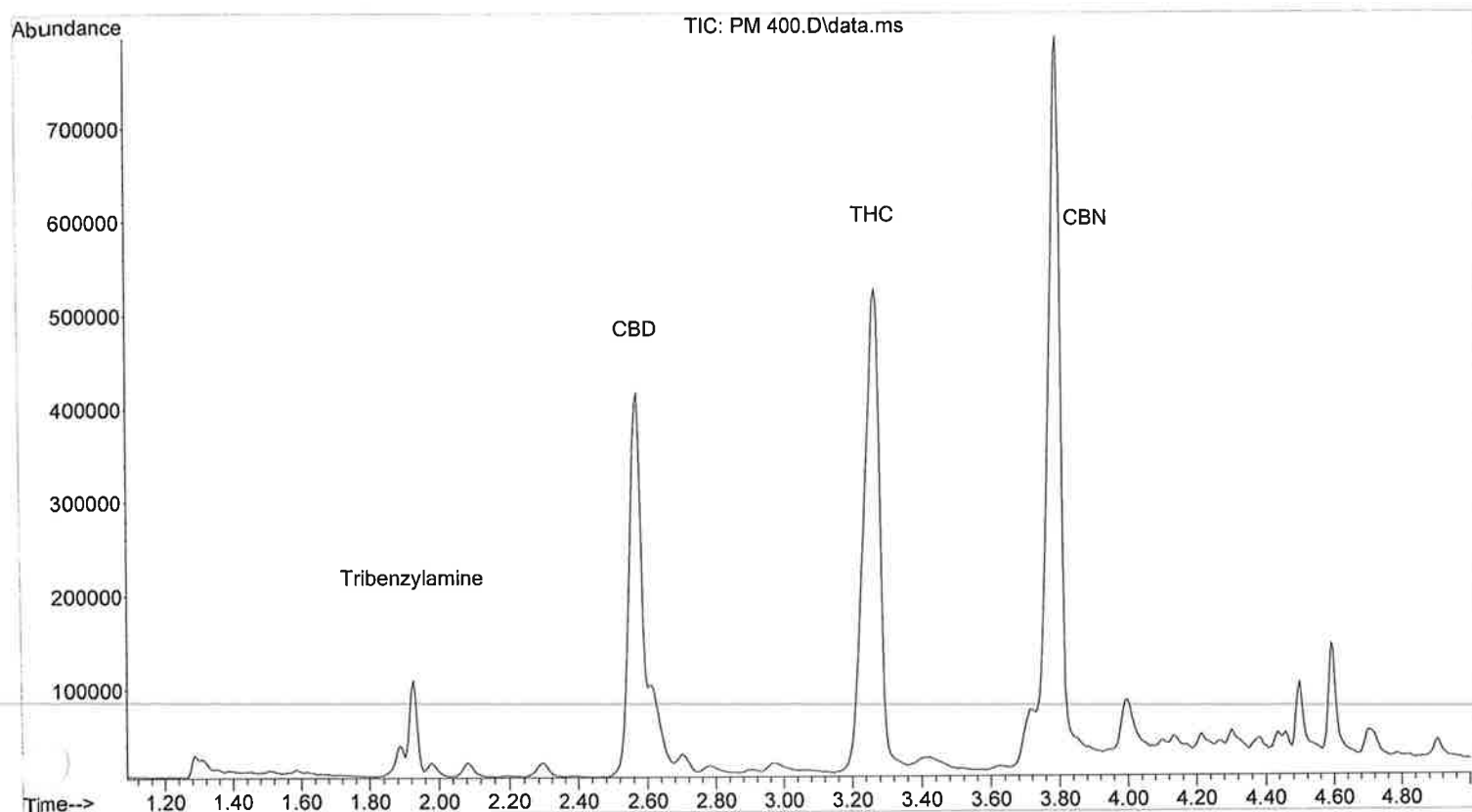
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Sample Name: Blank
Misc Info : Methanol
Vial Number: 42



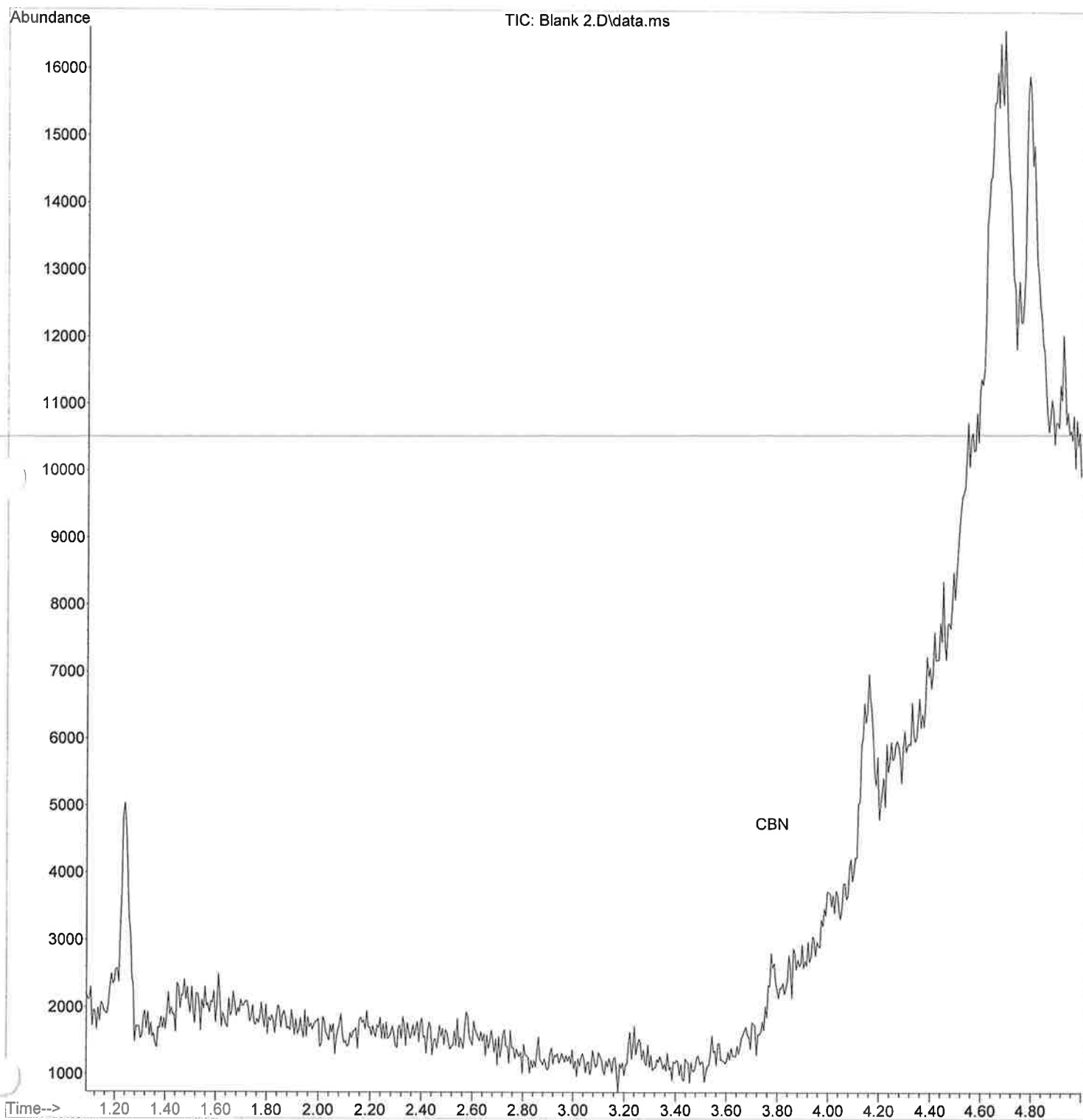
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Sample Name: Blank
Misc Info : Methanol
Vial Number: 26



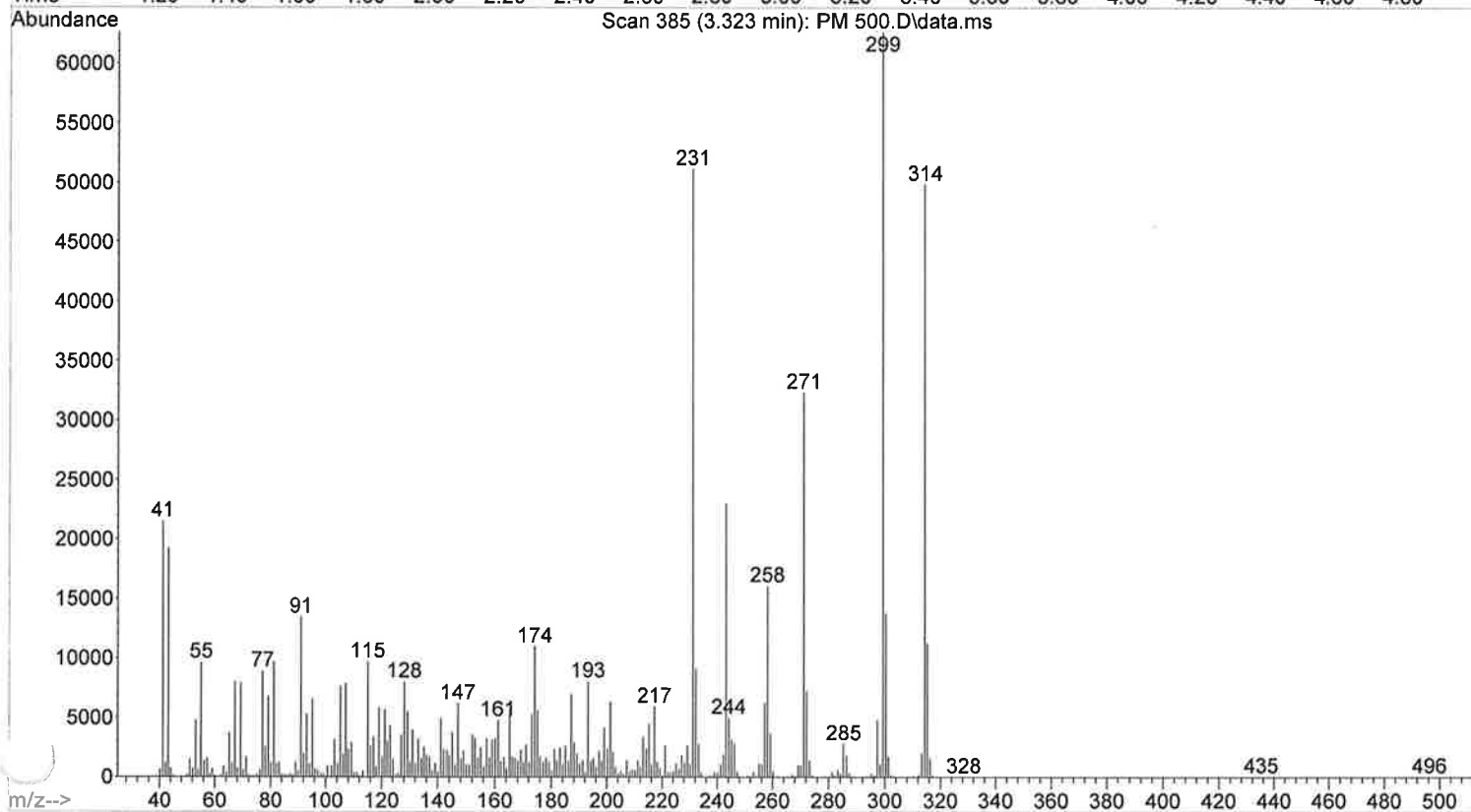
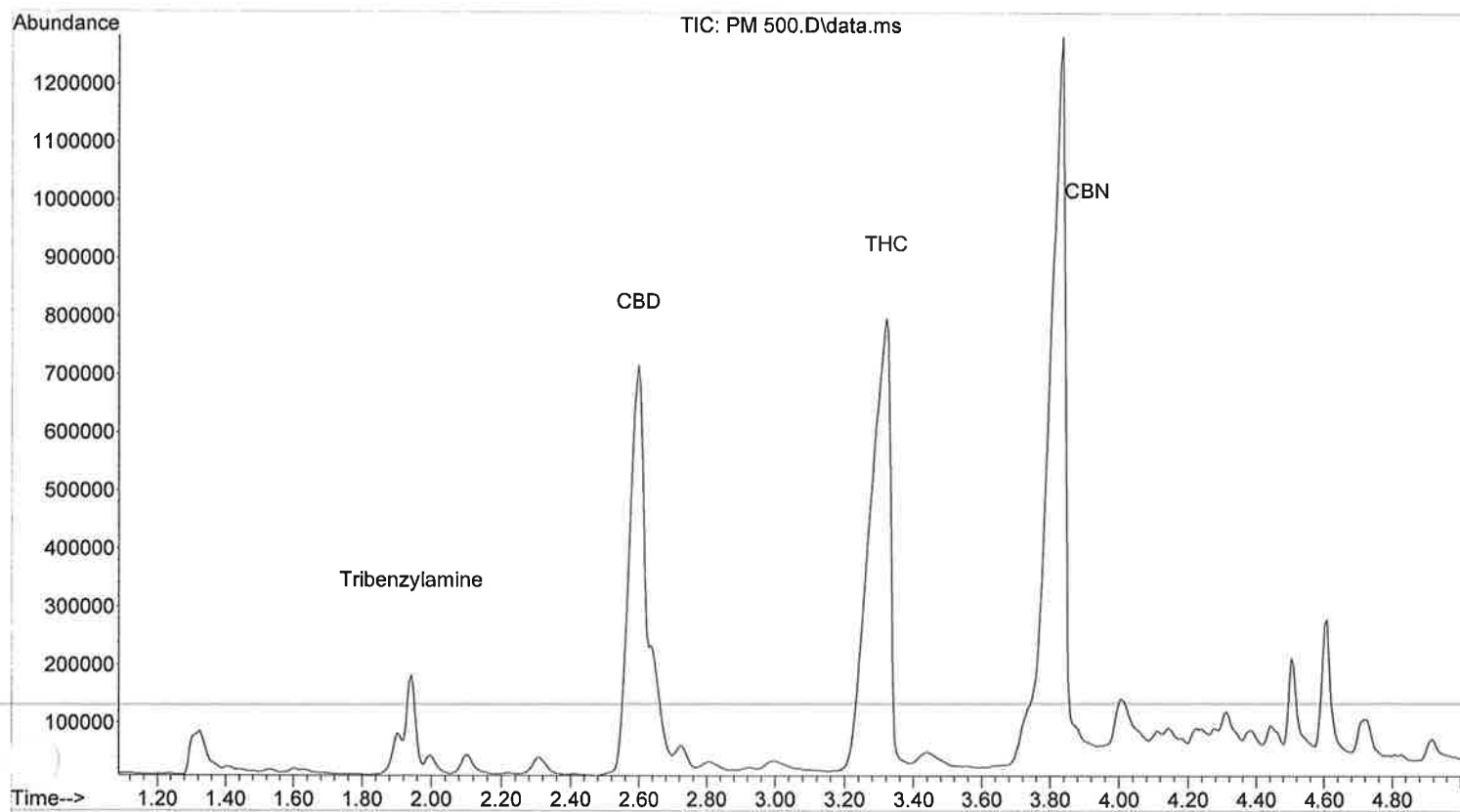
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Misc Info : Methanol
Vial Number: 27



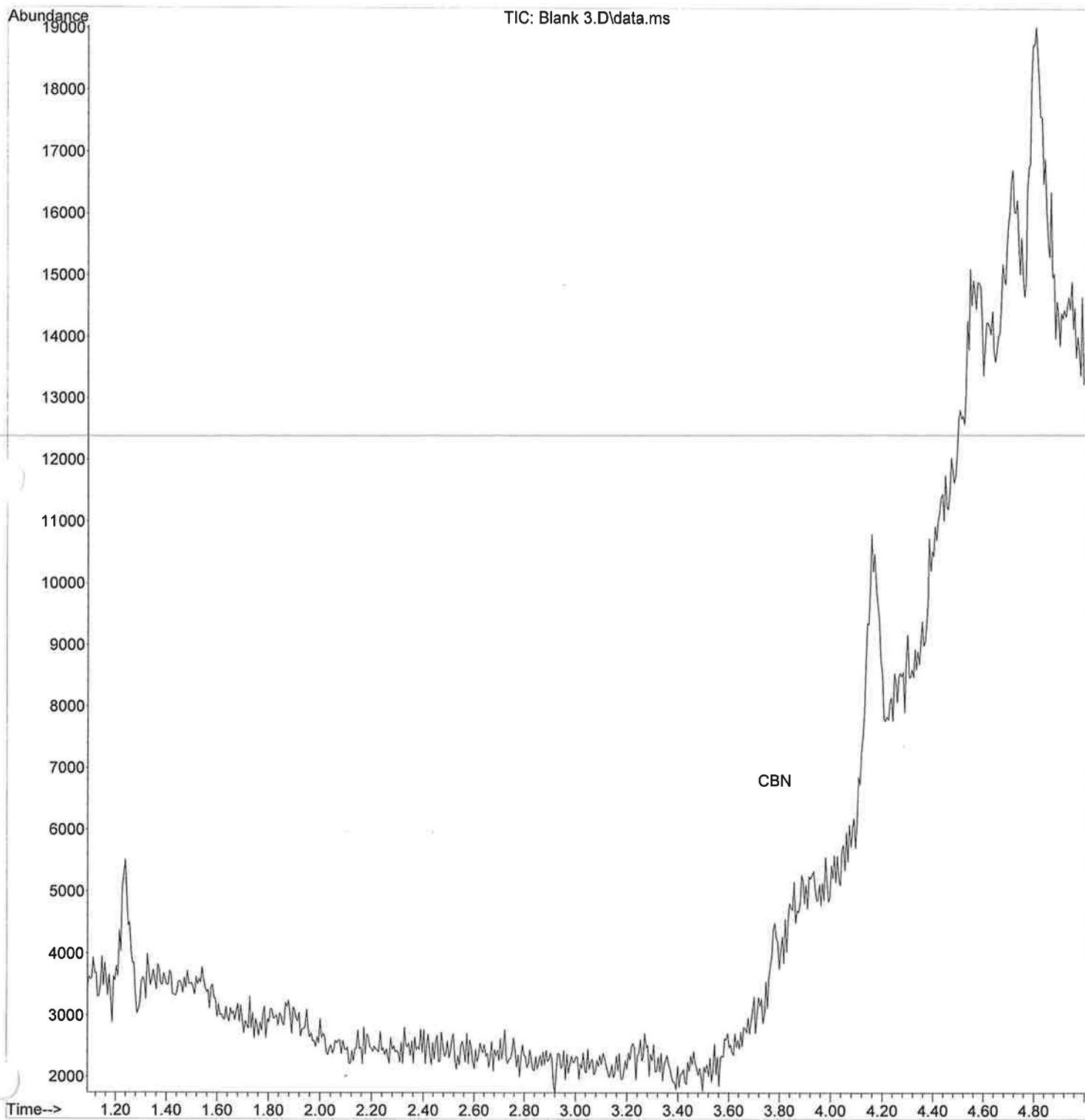
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Misc Info : Methanol
Vial Number: 28



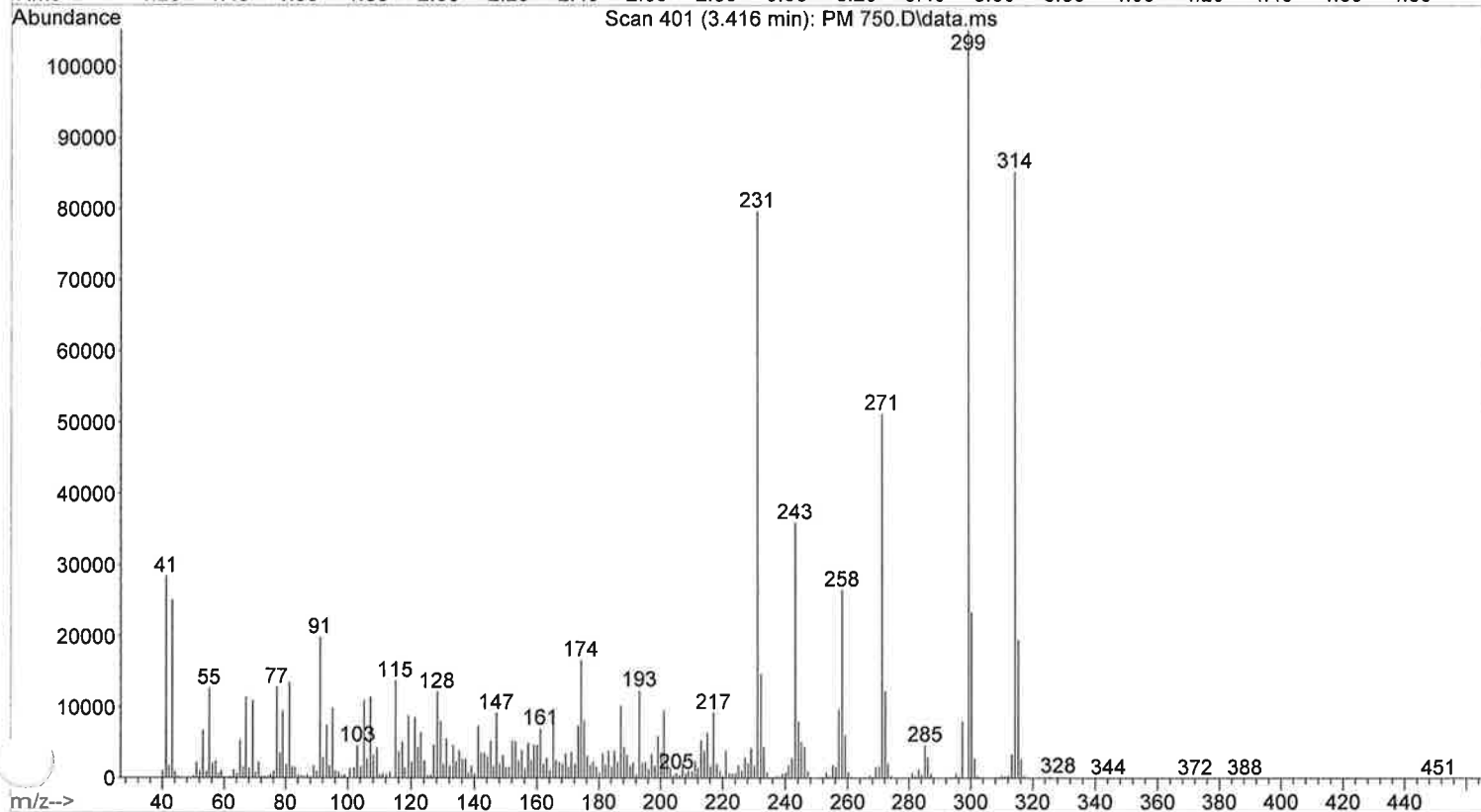
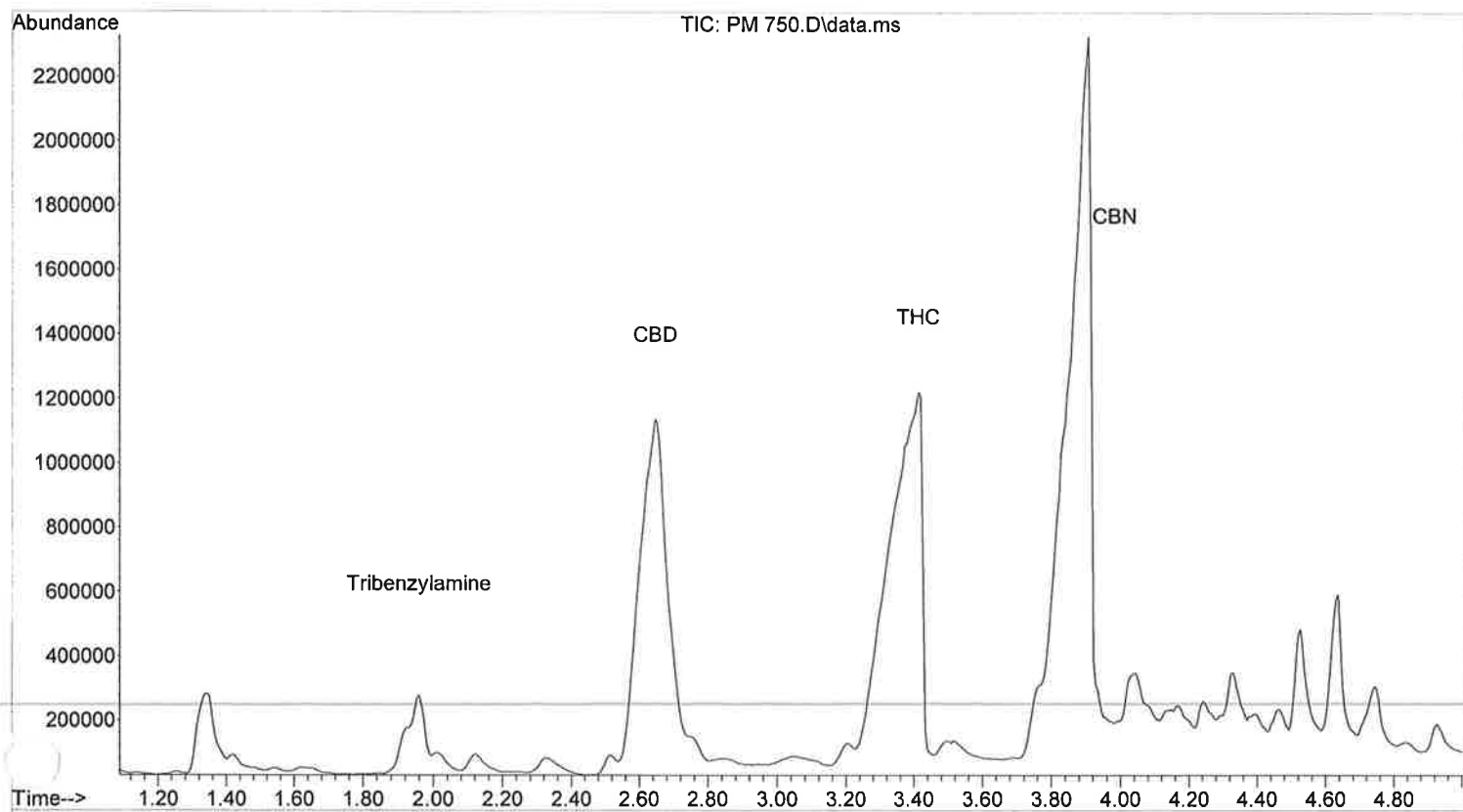
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Sample Name: Plant material
Misc Info : Methanol
Vial Number: 29



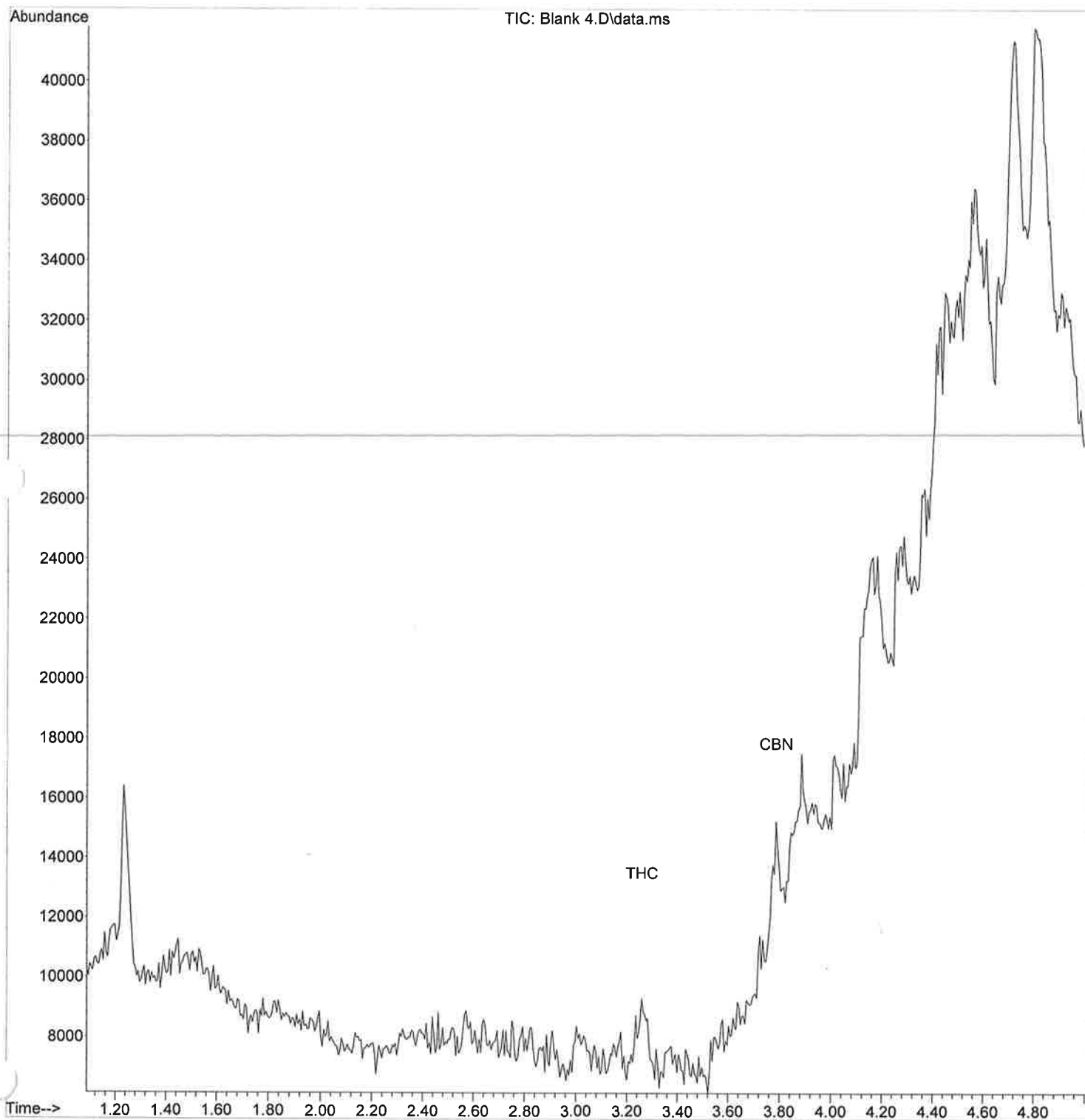
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Misc Info : Methanol
Vial Number: 30



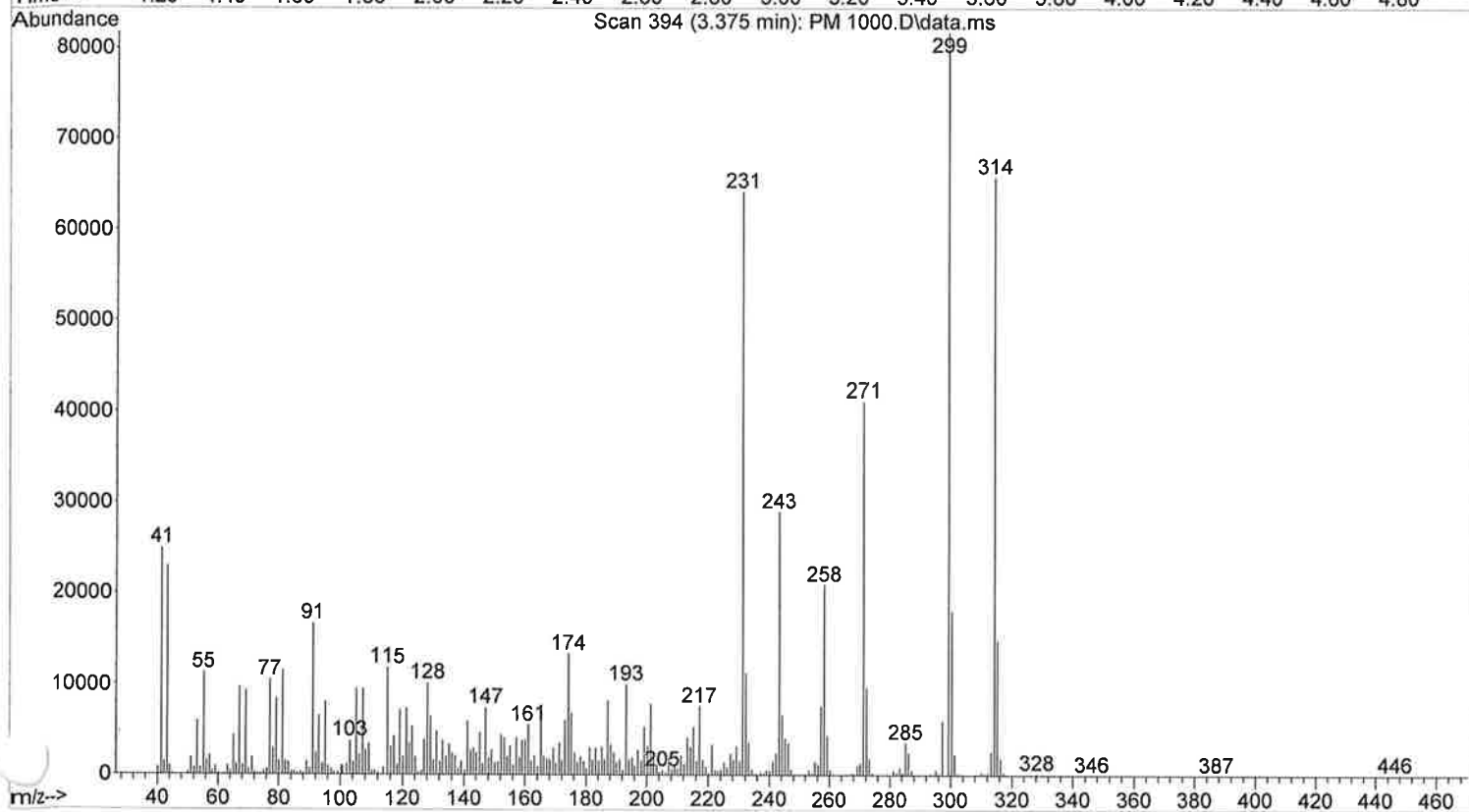
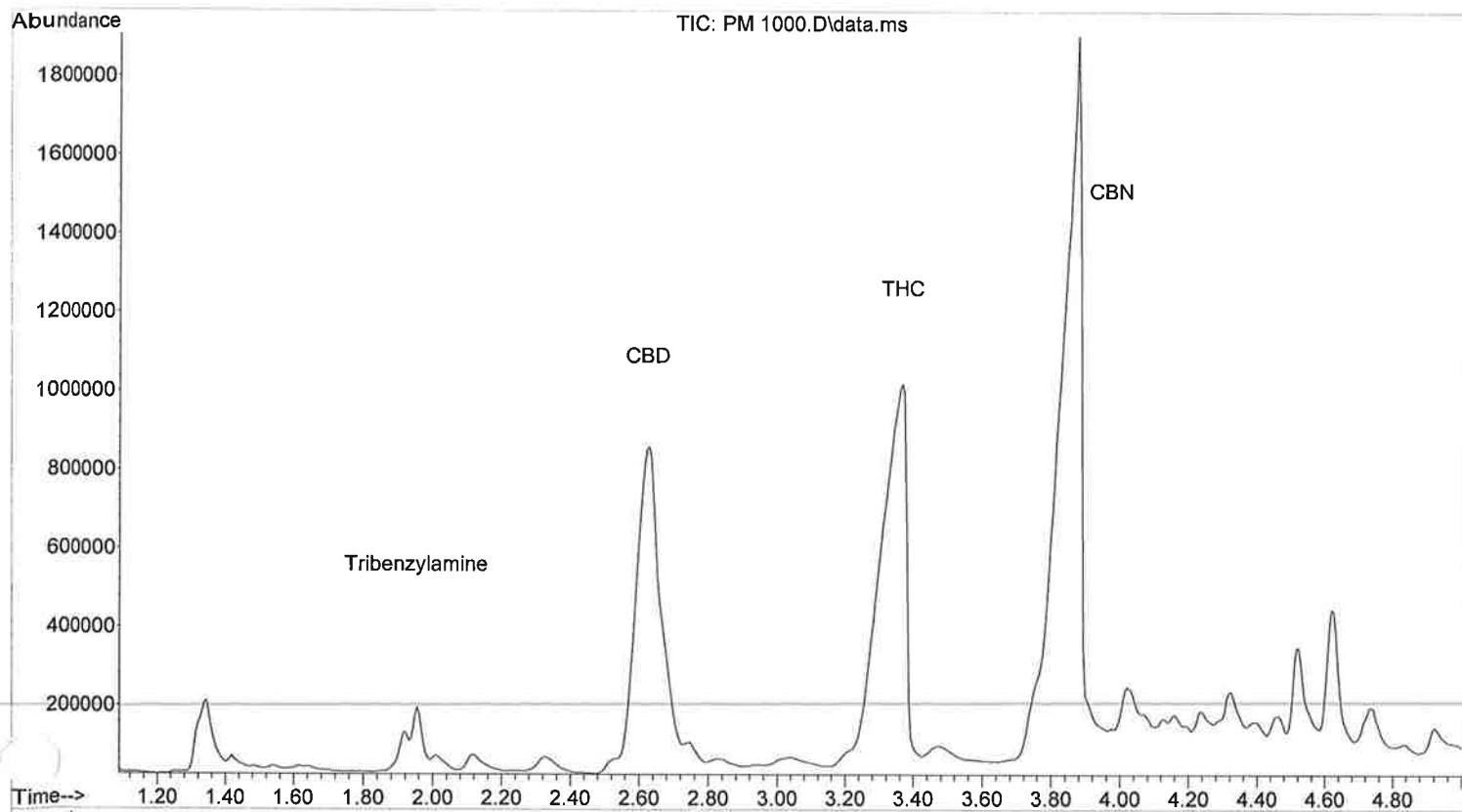
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Misc Info : Methanol
Via : Number: 31



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Sample Name: Blank
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Vial Number: 32



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Sample Name: Plant material
Misc Info : Methanol
Vial Number: 33



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Acquired : 13 Mar 2019 10:52 using AcqMethod THC-MS.M
Instrument : Gumbo
Sample Name: Blank
Misc Info : Methanol
Vial Number: 32

