

Application Note

Cannabinoid Pesticides

Introduction

Cannabinoid analysis has become a popular analytical issue due to the legalisation in some states as to its use for medicinal purposes. The growth of Cannabis plants in several locations therefore requires monitoring and regulation. Part of this monitoring is the use of the pesticides in the growth of the plants. The state of Nevada has 24 pesticides that need to be analysed quickly and efficiently in order to govern their use. In this application note we have used a simple HPLC method with a SpeedCore C18 column in order to analyse the 24 pesticides in one run.

“Pesticides require monitoring and regulation when used in the growth of edible plants”

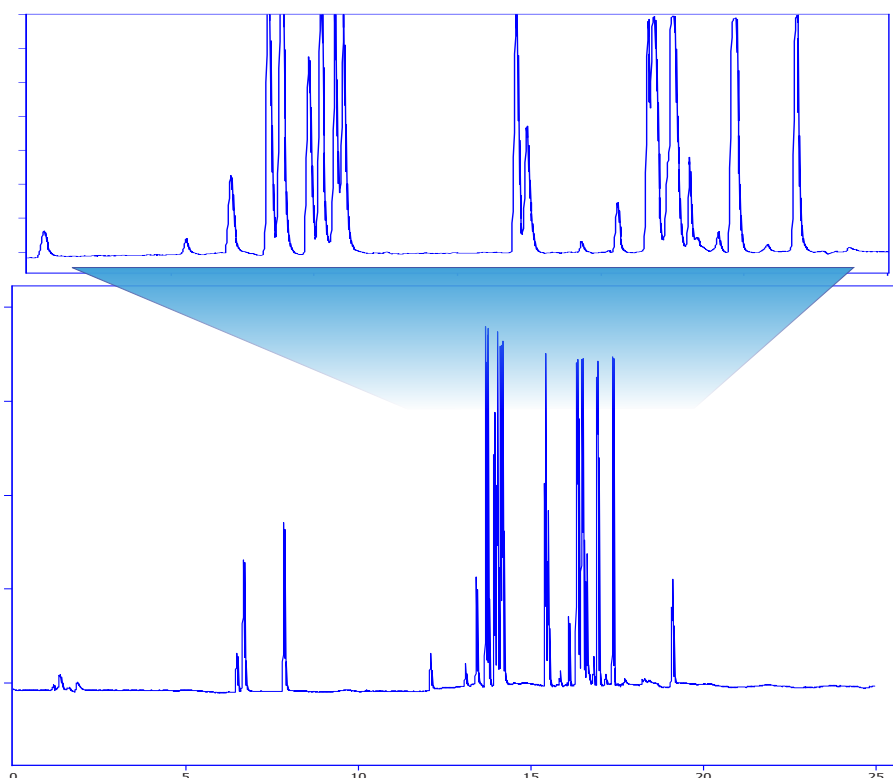


Figure 1. Separation of Cannabinoid Pesticides

Experimental Analysis

The use of a core-shell C18 column and a simple mobile phase is used for the analysis of the pesticides. The same column technology can also be used for the analysis of the important metabolites associated with the growth of cannabis plants. (See Fortis application note on Cannabinoid Metabolite analysis).

Initial Conditions

Column: 2.6µm SpeedCore® C18 150x4.6mm
p/n SC18-050726

Mobile phase

A: Water

B: MeOH

90:10 - 100% B in 15mins hold to 25mins

Flow Rate: 1.2ml/min

Temp: 30°C

Detection: 220nm

Compounds

1. Abamectin
2. Acequinocyl
3. Bifenazate
4. Bifenthrin
5. Captan
6. β-Cyfluthrin
7. Cypermethrin
8. Dimethomorph
9. Etoxazole
10. Fenhexamid
11. Flonicamid
12. Fludioxonil
13. Imidacloprid
14. Myclobutanil
15. Pentachloronitrobenzene
16. Piperonyl butoxide
17. Pyrethrum
18. Spinetoram
19. Spinosad
20. Spirotetramat
21. Thiamethoxam
22. Trifloxystrobin
23. Daminozide
24. Paclobutrazol

Conclusion

In this application note we have shown the separation of 24 pesticides potentially used in the production of cannabinoids for medicinal and recreational use.

Many testing laboratories are looking for a fast reliable, and cost effective solution to analyse the metabolites and pesticides and other chemical residues. In this application note we have show the simple analysis of 24 pesticides with a SpeedCore C18, water MeOH gradient LC method.

The same column and an equally simple mobile phase can be used for the analysis of the cannabinoid metabolites. Use of a SpeedCore C18 core-shell column allows for a fast run time of a very complex sample with good resolution between the many pesticides involved, with sufficient retention to alleviate any problems with early eluting polars or matrix effects which could compromise the accuracy of necessary components.



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