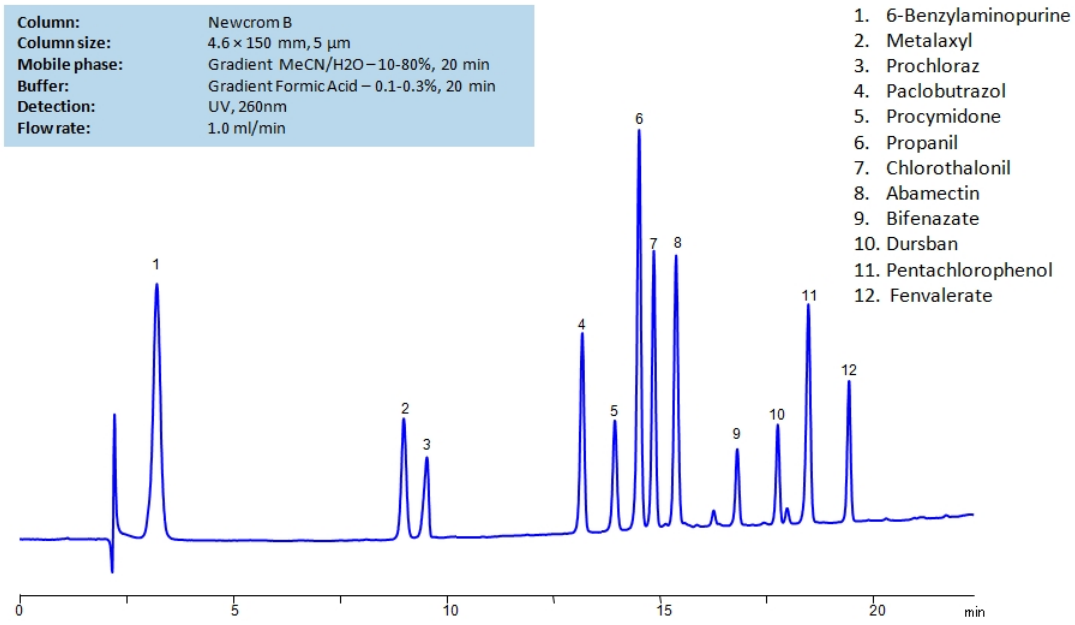
HPLC Separation of 12 Pesticides on Newcrom B Column



High Performance Liquid Chromatography (HPLC) Method for Analysis of 6-Benzylaminopurine , Metalaxyl (UV) , Prochloraz , Paclobutrazol , Propanil , Chlorothalonil , Chlorpyrifos-methyl (Dursban) , Pentachlorophenol , Fenvalerate , Abamectin , Procymidone , Bifenazate .

6-Benzylaminopurine is a plant growth regulation compound with the molecular formula C12H11N5 . It's presence in asparagus, for example, leads to deeper color, increased firmness, and a decrease in fibrous hardness. In general, it stimulates cell division and differentiation.

Metalaxyl , also known as methyl N-(methoxyacetyl)-N-(2,6-xylyl)-DL-alaninate, is a systemic fungicide with the chemical formula C15H21NO4 . It is used to control Pythium and Phytophthora in vegetables. It has suffered a resistance problem going back to the 1980s.

Prochloraz is an imidazole fungicide with the chemical formula C15H16Cl3N3O2 . It is used widely across Europe, Asia, South America, and Australia, but is not registered for use in the United States. It works as an inhibitor of the enzyme lanosterol 14α-demethylase.

Paclobutrazol (PBZ) is a synthetic triazole compound with the chemical formula C15H20ClN3O . It is used to control plant growth as an antagonist of the plant hormone gibberellin. Through reducing reducing internodal growth, it causes stronger stems, greater root growth, and earlier fruitset. It can also reduce frost sensitivity in plants.

Procymidone is a pesticide and fungicide with the chemical formula C13H11Cl2NO2 . It is typically used to kill unwanted ferns, nettles, and fungi in lupins, grapes, stone fruit, and strawberries.

Propanil is a contact herbicide with the chemical formula C9H9Cl2NO . It is one of the most widely used herbicides in America. It works as an inhibitor of photosynthesis and CO2 fixation in weeds.

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Chlorothalonil is a compound with a variety of uses as a fungicide, wood protectant, pesticide, and acaricide. It is used predominantly on peanuts, potatoes, and tomatoes. Outside of agriculture, it is also used in paints, resins, emulsions, and coatings. It’s chemical formula is C8Cl4N2 .

Abamectin is a insecticide with the chemical formulas C48H72O14and C47H70O14 . It is also used to control fire ant populations. In veterinary cases, it is used to deworm horses as well as an antihelmintic.

Bifenazate is pesticide with the chemical formula C17H20N2O3 . It is typically used to control a large variety of mite pests in plants in various settings. It works through modulating GABA receptors and inhibiting complex III of the mitochondrial electron transport chain.

Dursban is a highly toxic organophosphate with the chemical formula C9H11Cl3NO3PS . It works through interrupting the electrochemical processes in nerves. This leads to a build-up of acetylcholine, which leads to paralysis and eventual death.

Pentachlorophenol is a manufactured chemical with the chemical formula C6HCl5O . It is most often used as herbicide, insecticide, fungicide, algaecide, and disinfectant. Exposure to it can cause damage to liver, kidney, blood, lungs, eyes, skin, and mouth. It is classified as a probable human carcinogen.

Fenvalerate is synthetic pyrethroid insecticide with the chemical formula C25H22ClNO3 . It is used against a wide range of pests, partially due to it’s moderate mammalian toxicity following short-term and acute exposure. It is the most toxic to bees and fish. Upon contact, it may irritate skin and eyes.

6-Benzylaminopurine , Metalaxyl (UV) , Prochloraz , Paclobutrazol , Propanil , Chlorothalonil , Chlorpyrifos-methyl (Dursban) , Pentachlorophenol , Fenvalerate , Abamectin , Procymidone , Bifenazate can be retained and analyzed using the Newcrom B stationary phase column. The analysis utilizes an isocratic method with a simple mobile phase consisting of water and acetonitrile (MeCN) with a formic acid buffer. Detection is performed using UV.

Method Parameters

Column	Newcrom B, 4.6 x 150 mm, 5 µm, 100 Å, dual ended
Mobile Phase	MeCN/H2O
Buffer	Formic Acid
Flow Rate	1.0 mL/min
Detection	UV, 260 nm

Quelle: https://sielc.com/hplc-separation-of-12-pesticides-on-newcrom-b-column