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Investigation of Pyrolysis Behavior of Fenoxycarb Using PY–GC–MS Assisted with Chemometric Methods

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Fenoxycarb is a carbamate-type insect growth regulator. To investigate its pyrolysis behavior, it was pyrolysed at 600°C, 750°C and 900°C. Pyrolysate was directly subjected to GC–MS analysis. The separated components were identified using probability-based matching procedure followed by correlation of the boiling point – Lee retention index. It has been shown that (Py–GC–MS) pyrolysis assisted with chemometric methods is an effective technique for the investigation of carbamate pesticide pyrolysis. 84 components were determined in pyrolysate, which included the products of thermal decomposition of fenoxycarb, a variety of monoaromatics, polycyclic aromatic hydrocarbons, and other oxygenous or nitrogenous compounds. Determination of the components of pyrolysates may provide useful information for understanding of the pyrolysis mechanism of fenoxycarb and other carbamate pesticides.