

Abstract:

Atrazine is a commonly used herbicide in mid-western states in the United States, despite already being banned in Europe. Previous studies have shown atrazine to be an endocrine disruptor and long term exposure has the potential to adversely affect an entire ecosystem. Detection of atrazine in ground water samples is difficult due to the low concentrations, ranging from 1 to 200 parts per billion (ppb), typically found in agricultural runoff into local streams and ponds. An extraction method for pre-concentration of trace amounts of atrazine in water samples was developed. Gas Chromatography Mass Spectrometry (GC/MS) was used to analyze the pre-concentrated atrazine samples. The lowest atrazine concentration detected with the extraction method followed by GC/MS analysis was 0.05 ppb, whereas the lowest atrazine concentration detectable by direct GC/MS analysis (i.e., no extraction method) was 5 ppb. Quantification of atrazine with the extraction method is possible in the range of 0.05 to 5 ppb, and without the extraction method was 5 to 50 ppb. The extraction method was used for GC/MS analysis of water samples collected from crayfish tanks.